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Various pagings.

In Sessional papers No. 6, Appendices of the Report of the Minister of Public Works ... 30th June, 1876, page 23 is incorrectly numbered page 32.

In Sessional papers No. 6, Appendices of the Report of the Minister of Public Works ... 30th June, 1876, number on page 85 is printed upside down.

Part of Sessional papers No. 6 not printed.

SESSIONAL PAPERS.

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FOURTH SESSION OF THE THIRD PARLIAMENT

OF THE

DOMINION OF CANADA.

SESSION 1877.



VOLUME X.

890802

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- No. 5... **MARINE AND FISHERIES** :—Ninth Annual Report of the Department of, for the fiscal year ended 30th June, 1876.
 —————**SUPPLEMENT No. 1** :—List of Lights on the Coasts, Rivers and Lakes of the Dominion of Canada, on the 31st December, 1876.
 —————**SUPPLEMENT No. 2** :—Report of the Chairman of the Board of Steam-boat Inspection, for the calendar year ended 31st December, 1876.

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- WATER SUPPLY, PUBLIC BUILDINGS :—Agreement between the Water Commissioners of the City of Ottawa and Her Majesty Queen Victoria, for the supply of water to the Parliament and Departmental Buildings, Workshops, and Post Office, &c., Ottawa and Rideau Hall. (*Not printed.*)
- No. 7... MILITIA :—Report on the State of the Militia of the Dominion of Canada, for the year 1876.
- No. 8... AGRICULTURE :—Report of the Minister of Agriculture for the Dominion of Canada for the calendar year 1876.

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- No. 9... SECRETARY OF STATE FOR CANADA :—Report of, for the year ended 31st December, 1876.
- No. 10... NORTHERN RAILWAY COMMISSION :—Message with Report of a Commission appointed by Order in Council of 22nd July, 1876, to enquire into the affairs of the Northern Railway Company of Canada.
- No. 11... INTERIOR :—Report of the Department of the Interior, for the year ended 30th June, 1876.
- No. 12... INSURANCE :—Report of the Superintendent of, for the year ending 31st December, 1876.
- PART II.
- Abstract of Statements of Insurance Companies in Canada, for the year 1876. (*In advance of the Report of the Superintendent of Insurance.*)
- ROYAL CANADIAN INSURANCE COMPANY :—Return to Address, Reports of, which may have been made, in conformity with 36 Victoria, chapter 99, section 16, and 31 Victoria, chapter 48. Also, Reports respecting the business carried on by the said Royal Canadian Insurance Company, in the United States of America, in conformity with 31 Victoria, chapter 48, of the Acts of Parliament of Canada, and the Forms B. and C. of the said Acts. (*Not printed.*)
- A full and complete statement of the property and affairs of the Canada Agricultural Insurance Company, incorporated in 1872, by the Act of Canada, 25 Victoria, chapter 104—such statement to be duly sworn to as required by the Act of Canada, 36 Victoria, chapter 20, and to exhibit a List of the Stockholders, with the amount subscribed for, the amount paid thereon, and the residence of each Stockholder, &c., &c. (*Not printed.*)
- No. 13... MINISTER OF JUSTICE—MISSION TO ENGLAND :—Relating to Extradition of Criminals; Maritime Jurisdiction upon the Inland Waters, and of the Royal Instructions and Commission to the Governor General, particularly with reference to the prerogative of Pardon.
- No. 14... TREATY OF WASHINGTON :—Return to Address, Correspondence between the Government of the Dominion, and the Government of the United States, respecting the alleged violation of the Treaty of Washington.
- Report of the Committee of the Privy Council which had under consideration the long and serious delays that had arisen in the organization of the Commission that was to have met at Halifax for the consideration of certain articles in the Treaty of Washington.
- Correspondence which may have taken place on Article XX of the Washington Treaty. (*Not printed.*)

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- No. 15... PENITENTIARIES :—Report of the Minister of Justice on, for the year ended 31st December, 1876.
- No. 16... LIBRARY OF PARLIAMENT :—Report of the Librarian on the state of.
- No. 17... EXTRADITION OF PRISONERS :—Return relating to cases of Extradition of Prisoners under Treaty between Great Britain and the United States.

- No. 18... BANKS:—List of Shareholders of the several Banks of the Dominion of Canada, in compliance with Act 34 Vic., cap. 5, sec. 12. [*Not printed.*]
- No. 19... BAPTISMS, MARRIAGES AND BURIALS:—General Statement of, for certain Districts in the Province of Quebec, for the year 1876. [*Not printed.*]
- No. 20... STATUTES:—Official Return of the distribution of the Statutes of the Dominion of Canada, being 39 Victoria, Third Session of the Third Parliament, 1876. [*Not printed.*]
- No. 21... SUPERANNUATION:—Statement of Allowances and Gratuities under the Act 33 Vic., cap. 4.
- No. 22... STEAM FIRE ENGINES:—Return to Order, Statement of all Steam Fire Engines imported into the Dominion of Canada, and the Country whence imported, from 1st July, 1867, to 22nd March, 1876. [*Not printed.*]
- No. 23... UNFORESEEN EXPENSES:—Statement of Payments charged to Unforeseen Expenses under Orders in Council, from 1st July, 1876, to date, in accordance with the Act 39 Vict., cap. 1, Schedule B. [*Printed for distribution only.*]
- No. 24... NEW SOUTH WALES EXHIBITION:—Statement of Expenditure on account of New South Wales Exhibition, under authority of Special Warrant of His Excellency the Governor General, dated 21st December, 1876, for \$25,000. [*Not printed.*]
- No. 25... INTERCOLONIAL RAILWAY:—Statement of all claims made by private individuals or corporations in relation to the construction of the Intercolonial Railway, within the limits of the Province of Quebec. [*Not printed.*]
- Names of the Valutors employed on the Intercolonial Railway, in the Counties of Temiscouata and Rimouski, for the purchase of lands and the valuation of damages. [*Not printed.*]
- Claims filed with the Government for damages caused by the expropriation of lands in the said Counties, and the amount allowed by the Valuator on each of the said claims. (*Not printed.*)
- Statement shewing the amount which the Government of Canada have incurred in the construction of the Branch around Courtney Bay towards the Ballast Wharf, at the City of St. John, N.B.; and for the purchase of the Rankin Wharf Property for a deep water terminus for the said Railway. [*Not printed.*]
- Contract for the Iron Roof of the Station House, to be erected at Halifax; together with Tenders for the same.
- Tenders received for the erection of the Passenger Station at Halifax; correspondence, &c. [*Not printed.*]
- Correspondence in connection with payments made to J. F. B. McCreedy and others in King's County, for alleged damage sustained from the Intercolonial Road from fire and other causes. [*Not printed.*]
- Correspondence between the authorities of the City of Saint John, N.B., and the Dominion Government, in the matter of the Courtney Bay Extension of the Intercolonial Railway to the Ballast Wharf and ground required for the Works. [*Not printed.*]
- Correspondence between the Government and the interested parties of the Parish of Bic, with reference to the change of site of the Railway Station at the said place;—also with the interested parties of the Parish of St. Octave de Métié, and neighbouring Parishes, asking that the Station at St. Octave, be placed in a more convenient situation. [*Not printed.*]
- Correspondence between the workmen on Section 8 of the Intercolonial Railway and the Government, in relation to the non-payment of their wages for work done under the direction of John O'Donnell, agent of Duncan McDonald, contractor for the said section. [*Not printed.*]
- Statement of accidents which have occurred on the Intercolonial Railway in the County of Northumberland—the number of cattle killed—with the causes of such accidents—with a list of claims and amounts paid. [*Not printed.*]
- Statement shewing the monthly sales of Season and commutation tickets, at each Station of the Intercolonial Railway for a period of eighteen months preceding the 31st December last. [*Not printed.*]

- No. 25... INTERCOLONIAL RAILWAY :—Statement shewing all claims made against the Intercolonial Railway for damages or loss of any kind sustained by private individuals resulting from working the railway during the year 1876. [*Not printed.*]
- Statement giving full information in relation to the arrangement made between the Government and the Pullman Palace Car Company, in pursuance of which their cars are run on the Intercolonial Railway. [*Not printed.*]
- Statement shewing the various tariffs for the carriage of freight on the Intercolonial Railway, which have been in operation since 1st January, 1876, together with the changes made therein ; and also shewing all special rates granted since 1st January, 1876, to persons and companies or particular stations. [*Not printed.*]
- Correspondence relating to property on the Marsh Road in the County of St. John, N.B., alleged to have been damaged by Fire from Locomotives. [*Not printed.*]
- Statement of Tenders made from the 30th June, 1875, to 31st December, 1876, &c., for Wheels, Axles, Springs and other principal supplies, and for Buildings, Snow Sheds, &c., including the names of the parties, who made such offers. [*Not printed.*]
- Correspondence with the Phoenixville Iron Company, or a person from a Company in the State of Pennsylvania, in relation to any offers for Bridge Super-structure, Iron Roofs, Turn-Tables, Engines, Cars, &c. since, 31st December, 1875. [*Not printed.*]
- Orders in Council and Correspondence in regard to the appointment of Mr. James McAlister to the position of Cashier of the Intercolonial Railway, the creation of the office of Dominion Auditor at Moncton, the transfer of Mr. James McAlister thereto, the appointment of Mr. Charles D. Thompson, to the position of Cashier, the subsequent removal of Mr. Thompson, the abolition of the office of Dominion Auditor and the re-appointment of Mr. James McAlister to the office of Cashier ; also in regard to the subsequent provision made for Mr. Thompson. [*Not printed.*]
- Statement of Accidents which have occurred on the Intercolonial Railway since 1st July last, the locality and cause of each, and damage done, &c. [*Not printed.*]
- Contracts for the conveyance of Mails between Wallace in the County of Cumberland and Greenville Station on the Intercolonial Railway, supplying the several way offices at Wallace Bridge, Six Mile Road, &c., to 1st November last when the delivery for these offices was changed to Wentworth Station, with the Contract for the latter service and the amount paid therefor. (*Not printed.*)
- Return of all monthly measurements and estimates for the various kinds of work done on Section No. 16, Intercolonial Railway, while under contract to Messrs. King & Gough, and subsequently under contract to J. O. Gough, shewing the actual quantities and kinds of all work executed and returned, &c. [*Not printed.*]
- Correspondence relating to Coal alleged to be detained, forfeited or misappropriated. [*Not printed.*]
- Correspondence in pursuance of which the Officers of the Intercolonial Railway are insured with the Guarantee Company of Canada. [*Not printed.*]
- Statement showing the authority under which two dwelling-houses with stables and outbuildings were erected during the past summer, at Moncton, for the use of the resident Engineer and Traffic Superintendent of the Intercolonial Railway ; the amount authorized to be expended and the amount actually expended. [*Not printed.*]
- Expenses incurred for changing the gauge of the Intercolonial Railway, and showing how the expenditure is classified in the Railway Accounts. [*Not printed.*]
- Description and cost of each of the works of the Intercolonial Railway, not chargeable to ordinary maintenances, which have been constructed during the two years ending 31st December, 1876. [*Not printed.*]
- Statement shewing (1st) the arrangement made for insuring the Employés of the Intercolonial Railway against accidents ; (2nd), the monthly deductions made from the wages or salaries on account of said insurance ; and (3rd), the particulars of all amounts paid out of the Railway on account of such insurance. [*Not printed.*]

- No. 25... **INTERCOLONIAL RAILWAY**:—Statement of all expenditures made in constructing restaurant, enlarging the store-house, erecting freight-house, &c., and other such work done in the railway station yard at Moncton during the year 1876. [*Not printed.*]
- Return showing the number and names of all persons who have passed free on the Intercolonial Railway and its branches; from the 1st day of January, 1876, to the 1st day of March, 1877, stating authority, and for what cause such free passages were given. [*Not printed.*]
- Return showing the total cost of the Superintendent's Palace Car, so called, including the work done thereon by the artisans employed by the railway authorities, the extra cost of running the same, &c. [*Not printed.*]
- Return of the salaries or perquisites received by the General Superintendent and all other officers and employes of the said railway, including Conductors, Station Masters and Ticket Agents. [*Not printed.*]
- Return of the resident employes on the Intercolonial Railway within the County of Northumberland—the date of their appointment—when they were located or stationed in their present positions—the nationalities of the several individuals, and the number of them which were at the time of their appointment residents of the said County, with the rate of wages which they respectively receive. [*Not printed.*]
- No. 26... **JESUIT BARRACKS**:—Return and Supplementary Return to Address, Correspondence between the Dominion Government, and the Government of Quebec, relating to the Jesuit Barracks in the City of Quebec, &c.
- No. 27... **SUPREME COURT**:—General Rules and Orders made by the Judges of the Supreme and Exchequer Courts since last Session. [*Not printed.*]
- Return to Address, Number of suits instituted before the Supreme Court; and of the number of Judgments rendered by the said Court. [*Not printed.*]
- Return to Address, Correspondence between the Government of the Province of New Brunswick and the Dominion Government, on the subject of obtaining the opinion of the Supreme Court on the question of the powers of the Provincial Legislature, relative to the granting or withholding of licenses to sell intoxicating liquors.
- No. 28... **MCGILL COLLEGE**:—Copy of every contract, deed or agreement entered into between the Government of the Dominion of Canada and McGill College, concerning an immovable, situate in the City of Montreal, known by the name of the Crystal Palace, and heretofore possessed by the Board of Arts and Manufactures, and subsequently by the Council of Arts and Manufactures, of the Province of Quebec. [*Not printed.*]
- No. 29... **IMMIGRATION DEPARTMENT, LONDON**:—Return to Address, Statement of the amounts expended on behalf of the Dominion in the Government Immigration Department in London, England, and all expenditures connected therewith, from the 30th June to 1st January last; also, Correspondence between the Dominion Government and the Agent General of Canada, in London, respecting changes in the Immigration Department at London. [*Not printed.*]
- No. 30... **ADVERTISING**:—Return to Address, Statement showing the newspapers in which advertising has been done by the Government for the years 1872, 1873, 1874 and 1875, in each of the Provinces of the Dominion, &c. [*Not printed.*]
- Return to Order, Statement of the expenses during the years 1874, 1875 and 1876, in advertising on behalf of the Government or any public service in the public journals of the Dominion; also, the amount paid in subscriptions.
- No. 31... **BONDS AND SECURITIES**:—Statement of Bonds and Securities registered in the Department of the Secretary of State of Canada, dated 16th February, 1877. [*Not printed.*]
- No. 32... **VIEUX CHATEAU ST. LOUIS**:—Return to Address, Correspondence between the Dominion Government and the Government of the Province of Quebec, relating to an exchange of the property called "Vieux Chateau St. Louis," in the City of Quebec, for that of Hospital and Officers' Quarters, in St. Louis Street of the said City.
- No. 33... **HARBOUR COMMISSIONERS, MONTREAL**:—Return to Address, Statement of all salaries, fees and indemnity paid by the Harbour Commissioners of Montreal, to any member or employe of the said Harbour Commission, since 1872. [*Not printed.*]
- No. 34... **MILITARY COLLEGE, KINGSTON**:—Return to Order, Number of candidates that have come forward for admission to the Military College at Kingston, from each Province, distinguishing those of French origin from the others. [*Not printed.*]

- No. 35... FINANCIAL AGENTS, &c.:—Return to Order, Statement of all moneys lying at the credit of the Dominion in any bank, or in the hands of any financial agent, or other persons with whom such moneys are deposited in Canada or elsewhere. [*Not printed.*]
- No. 36... CHENAL ECARTÉ, &c.:—Return to Order, All expenditure in detail incurred in dredging a channel at the entrance of the Chenal Ecarté, into Lake St. Clair. [*Not printed.*]
- No. 37... FISHERMEN, ST. LAWRENCE :—Return to Address, Correspondence between the Federal Government and Local Government of the Province of Quebec, respecting the distressing condition of the resident fishermen and traders located on the North Coast of the River St. Lawrence, within the Dominion. [*Not printed.*]
- No. 38... WALLACE AND MALAGASH :—Return to Order, Contract for the conveyance of the Mail between Wallace and Malagash, in the County of Cumberland, &c. [*Not printed.*]
- No. 39... LOAN :—Return to Order, Prospectus issued by the Hon. Minister of Finance in London for the last Loan—a Statement of the time allowed for the reception of tenders, and the period when the reception of Tenders was closed, with the several amounts offered by parties tendering, and the amounts allotted to them respectively.
- No. 40... MANUFACTURED GOODS :—Return to Order, Showing the general nature and value of all Manufactured Goods imported into Canada from the United States in the years 1874, 1875, and 1876.
- No. 41... MANITOBA :—Return to Address, Letters between the Dominion Government and the Government of Manitoba, respecting the relief to be given to settlers. [*Not printed.*]
- Return to Order, Returns of all lands surrendered by the Dominion Government to the Government of Manitoba, for road purposes. [*Not printed.*]
- Return to Order, Correspondence relating to the distribution of Half-breed lands, in the Province of Manitoba. [*Not printed.*]
- No. 42... RAILWAYS, NEW BRUNSWICK :—Return to Address, Correspondence between the Government of Canada or Companies in New Brunswick, since the 1st January, 1874, in relation to aid to be given to the construction of Railways in that Province. [*Not printed.*]
- No. 43... CAPITAL OFFENCES :—Return to Order, All convictions for capital offences between the 1st July, 1867, and the 31st December, 1876, showing the names of the convicts, the nature of the crime, the action of the Executive, and the date of such action.
- No. 44... LORANGER, Hon. Mr. :—Return to Address, Petitions of T. D. Latour and others, dated the 5th June, 1874, and the 2nd November, 1875, presented to the Government, concerning the Hon. Mr. Justice Loranger, and of all correspondence relating thereto. [*Not printed.*]
- Return to Address, Petition of J. B. Brousseau, Esq., of the Town of Sorel, dated the 24th February, 1876, in relation to Mr. Justice Loranger. [*Not printed.*]
- No. 45... SURGEONS ON BRITISH STEAMERS :—Return to Address, Correspondence between the Government of Canada and the Imperial Government or any Steamship Company or private individual, touching the qualifications of Surgeons on British Steamers, or other passenger ships sailing to, or from British ports.
- No. 46... DOMINION DAM :—Return to Order, All instructions or orders from the Department of Public Works relating to the destruction by force, last July, of the Dam called the Dominion Dam, on Devil Lake, in the County of Addington. [*Not printed.*]
- No. 47... VICTORIA BREAKWATER :—Return to Order, Reports in possession of the Department of Public Works, in connection with the Victoria Breakwater, Wood Islands, Prince Edward Island; also all correspondence relating to the same, received from the Government of Prince Edward Island. [*Not printed.*]
- No. 48... CITADEL OF QUEBEC :—Return to Order, Contracts between the Government and any person or company for the execution of work at the Citadel of Quebec in 1874 and 1875; 2nd. Copies of all arrangements made for the execution of any portion of the said works. [*Not printed.*]
- No. 49... RAILWAYS IN NOVA SCOTIA :—Return to Order, Special rates accorded to any companies or individuals for the conveyance of freight over the Railways in Nova Scotia or New Brunswick, with the names of the companies or individuals. (*Not printed.*)
- No. 50... RAILS :—Return to Order, Quantity of old Rails in the possession of the Government, shewing whether the same are of such a character as to be made available for the aiding in the construction of Branch Lines.

- No. 51... NOVA SCOTIA, INDIAN COMMISSIONERS:—Return to Order, The number of Commissioners for Indian Grants in Nova Scotia; the Counties over which each presides, and the amount annually placed in the hands of each. [*Not printed.*]
- No. 52... MORRIS, HON. ALEXANDER:—Return to Address, Instructions to the Honorable Alexander Morris, Lieutenant-Governor of the North-West Territories. (*Not printed.*)
- No. 53... WEIGHTS AND MEASURES ACT:—Return to Order, Instructions from the Department of Inland Revenue to Inspectors, in connection with the Weights and Measures Act; together with the names and salaries of each Inspectors, and Sub-Inspectors.
- Correspondence relating to the working of the Act on "Weights and Measures." (*Not printed.*)
- No. 54... VICE-ADMIRALTY, &c., COURT OF:—Return to Address, Correspondence between the Government of the Dominion, and of the late Province of Canada, and the Imperial Government, touching the extension of the Jurisdiction of the Court of Vice-Admiralty to the Inland Waters of Canada.
- No. 55... GRAND TRUNK RAILWAY:—Correspondence respecting disturbance on the line of the Grand Trunk Railway of Canada.
- Correspondence on the subject of the arrangements effected, permitting the carriages of the Intercolonial Railway Company to run over that section of the Grand Trunk Railway between Rivière-du-Loup and Point Lévis.
- No. 56... MARINE HOSPITAL, QUEBEC:—Return to Order, For Mr. Langmuir's Report on the Marine Hospital, at Quebec. (*Not printed.*)
- No. 57... PACIFIC RAILWAY:—Return to Address, Reports made as to the construction of the Georgian Bay Branch of the Pacific Railway, under contract by the Hon. A. B. Foster, together with a statement of the service or services for which the sum of \$109,000.50 has been paid to the said A. B. Foster on account of said contract. (*With Map.*)
- Correspondence between the Government and the Contractors for the construction of the Pacific Telegraph.
- Return to Order, Tenders received for the construction of Contract No. 15, Canadian Pacific Railway. (*Not printed.*)
- Return to Address, Papers connected with the awarding of Section 15 of the Canadian Pacific Railway, including copies of advertisements for tenders.
- Statement shewing the quantity of land purchased for railway purposes by the Government on the Kaminstiquia for a terminus of the Canadian Pacific Railway, the persons from whom said purchase was made, and the amount paid therefor. Also, a copy of all correspondence between the Government and the Municipality of Shuniah, Prince Arthur's Landing, touching the terminus of the said Railway, or aid thereto.
- Message with Correspondence having reference to the construction of the Canadian Pacific Railway.
- Statement showing cost of construction of Pacific Telegraph. (*Not printed.*)
- Contracts entered into for construction of the Canadian Pacific Railway, together with a Statement of sums expended in construction, in conformity with the provisions of the Act 37 Victoria, Chapter 14, Section 9. (*Not printed.*)
- No. 58... BLOOMSBURG:—Return to Order, Correspondence with the Postmaster General in reference to charges preferred against the Postmaster of Bloomsburg, in the County of Norfolk. (*Not printed.*)
- No. 59... PRINTING AND STATIONERY, POST OFFICE DEPARTMENT:—Return to Order, Showing the amounts paid for printing and stationery for the Post Office Department during the year 1875 and 1876 respectively, other than to the Parliamentary Printer and Contractor at Ottawa, &c.
- No. 60... COLLET, Mr.:—Return to Order, Correspondence and documents relating to the dismissal of Mr. Collet, as Postmaster of St. Henri, in the County of Lévis. (*Not printed.*)
- No. 61... LIVE STOCK—IMPORTS AND EXPORTS, &c.:—Return to Order, Classified Return of imports and exports of live stock, showing place from whence it comes and destination; for each quarter, from March 1st, 1875, to January 1st, 1877, and for the month of January, 1877.

- No. 62... **GREAT BRAS D'OR** :—Return to Order, Correspondence regarding the Postmaster at Great Bras d'Or and the reason why McLeod did not get the office, after he was appointed. (*Not printed.*)
- No. 63... **SEIZING AND LANDING OFFICERS** .—Return to Order, Correspondence with John Baine, Angus Morrison and Charles S. Campbell, regarding their dismissals from office as Seizing and Lading Officers at Great Bras d'Or.
- No. 64... **GYPSUM** :—Return to Order, All Gypsum or Plaster of Paris imported from the United States into Canada, giving the Ports or places whence imported, as also the Ports in Canada where entered. (*Not printed.*)
- No. 65... **SUGAR IMPORTED, &c** :—Return to Order, Return from 1st January, 1875, to 1st January, 1877, showing the quantities of different grades of sugar imported from Europe, British and Foreign West Indies and the United States.
- No. 66... **PARTRIDGE ISLAND RIVER, &c** :—Return and Supplementary Return to Order, Correspondence relating to the improvement of the Harbor at the mouth of Partridge Island River. (*Not printed.*)
- No. 67... **INGONISH HARBOR** :—Return to Order, Tenders and Contracts for the construction of a Harbor at Ingonish, Nova Scotia, &c. (*Not printed.*)
- Return, Plans of Contract for building Ingonish Harbor (being part of Contract); also report of Engineer agreeing to curtailment of said original plans and specification, and the correspondence on that subject. (*Not printed.*)
- No. 68... **SENATORS, ADDITIONAL** :—Return to Address, Correspondence that has taken place between the Canadian and Imperial Governments since 1873, in reference to the appointment of additional Senators to the Senate, as provided by Clause 23 of the British North America Act.
- Return to Address, All correspondence between the Dominion and the Imperial Governments from the month of October, 1873, to 31st December, 1874, and relating to the appointment of Senators for the Dominion. (*Not printed.*)
- No. 69... **CREIGHTON JOSEPH** :—Return to Address, Correspondence with the Government relative to the appointing last year of Joseph Creighton, Shipping Officer for the Port of Lunenburg, Nova Scotia. (*Not printed.*)
- No. 70... **LAKE HURON MAIL SERVICE, &c** :—Return to Address, Advertisement or notice issued calling for tenders for the performance of the Mail Service for the season of 1876, on Lakes Huron and Superior between the ports on Lake Huron and the Georgian Bay and Prince Arthur's Landing, Duluth, &c. (*Not printed.*)
- No. 71... **MARINE HOSPITAL, SYDNEY** :—Return and Supplementary Return to Order, All money expended in building a Marine Hospital at Sydney, Cape Breton. (*Not printed.*)
- No. 72... **CARS ON RAILWAYS, INTERCHANGE OF, &c** :—Return to Order, Statement of any arrangement made between the Government Railways and the Grand Trunk Railway Company, for the interchange of cars and transportation of passengers and freight. (*Not printed.*)
- No. 73... **RIVER SYDENHAM SURVEYS, &c** :—Return to Order, Statement in detail of all expenses incurred and moneys expended in connection with the surveys of the North Branch of the River Sydenham. (*Not printed.*)
- No. 74... **BAIE ST. PAUL, &c** :—Return to Order, Mr. Kingsford's Report on the Piers at Baie St. Paul, Eboulements and Malbaie, in the summer of 1876. (*Not printed.*)
- No. 75... **GODERICH HARBOR WORKS** :—Return to Address, Orders in Council, having reference to the Goderich Harbor Works.
- No. 76... **MILITIAMEN 1812 '15** :—Return to Order, Shewing the names of all veterans who have proved their right to partake in the grant of \$50,000 voted last session by Parliament in favor of Militiamen of 1812 and '15.
- CONTENTS OF VOLUME No. 9.**
- No. 77... **STEEL RAILS** :—Return to Address, Statement showing the use which has been made, during the year 1876, of any portion of the Steel Rails purchased by the Government in the years 1874 and 1875.
- Return to Order, Statement of all accounts paid in connection with the purchase of 50,000 tons of Steel Rails, fastenings, &c., for the Pacific Railway.

- No. 78... GOVERNMENT RAILWAYS, MARITIME PROVINCES:—Return to Address, Shewing the number of tons of freight carried over the Government Railways in the Maritime Provinces, in the quarter ending December 31st, 1875. (*Not printed.*)
- No. 79... ST. PETER'S CANAL, C.B.:—Return to Address, All correspondence during the past year in relation to the enlargement of St. Peter's Canal, in the Island of Cape Breton. (*Not printed.*)
- No. 80... DOMINION NOTES:—Return to Address, Statement showing the amount of Dominion Notes that have been redeemed in gold from the first day of September, 1874, to the 31st December, 1875, showing the names of the banks or individuals making the demand, or to whom the money has been paid. (*Not printed.*)
- Return to Order, Accounts of Dominion Notes of the denomination of one and two dollars, payable in Victoria, which have been forwarded by Government to the Assistant Receiver-General for the Province of British Columbia, during each year, since the admission of that Province into the Dominion. (*Not printed.*)
- No. 81... SYDNEY TO COW BAY, &C., MAILS:—Return to Address, Contracts entered into during the year 1876, for the conveyance of Her Majesty's Mails from Sydney to Cow Bay, Little and Big Glace Bays, and Bridgeport, in the County of Cape Breton. (*Not printed.*)
- No. 82... VOLUNTEER FORCE OF CANADA:—Return to Order, The names of all the Deputy Adjutant-Generals and Brigade Majors on the Staff of the Volunteer Militia Force of Canada on the 1st day of January, 1876. (*Not printed.*)
- No. 83... BARNARD, F. J.:—Return to Address, Correspondence between the Government of Canada and F. J. Barnard, Esquire, Contractor for the Telegraph Lines in British Columbia, since the 26th May, 1875.
- Return to Order, Statement showing each sum of money paid to F. J. Barnard, Esquire, Contractor for the Telegraph Lines in British Columbia, since the 10th February, 1875. (*Not printed.*)
- No. 84... EAGLE HARBOR:—Return to Engineer's Report of the Survey of Eagle Harbor, in the County of Elgin, to decide on its suitability as a Harbor of Refuge; and map of the said Harbor. (*Not printed.*)
- No. 85... SCOTT'S JUNCTION:—Return to Order, Correspondence between the Inspector of Post Offices for the Quebec Division, in relation to the contract for carrying the Mail between Scott's Junction, in the County of Beauce, and Parish of St. Bernard, in the County of Dorchester. (*Not printed.*)
- No. 86... NOVA SCOTIA, GREAT SEAL:—Return and Supplementary Return to Address, All correspondence relating to the Great Seal of the Province, that has been affixed to all documents requiring the same since Confederation.
- No. 87... GRAHAM, WILLIAM:—Return to Order, Correspondence between Sarah Graham, Widow, and the Government, in reference to an application for aid in consequence of the reduction of salary and subsequent death of the late William Graham, at that time a Messenger of this House. (*Not printed.*)
- No. 88... FORT FRANCIS LOCKS, &C.:—Return to Address, All Orders in Council relating to the construction of Fort Francis Locks or Canal.
- No. 89... PROVINCIAL ACTS, DISALLOWANCE OF:—Return to Address, "All correspondence between the Federal and any of the Provincial Governments since the establishment of Confederation concerning the disallowance of Provincial Acts or the action on Provincial Bills reserved.
- Return to Address, Correspondence between the Imperial and Canadian Governments, concerning the mode of exercising the power of disallowance of Provincial Acts.
- No. 90... RONDEAU LIGHTHOUSE:—Return to Order, Shewing in detail the cost of erection of Lighthouse at the Harbor of Refuge at Rondeau. (*Not printed.*)
- No. 91... NICOLAS RIOUX:—Supplementary Return to Order, Correspondence between the Government and the Censitaires of the Seigniorie Nicolas Rioux, in the County of Rimouski, in the matter of the tax which they pay to the Seigniors, instead of Statute days' labor (*les journées de Corvée*). (*Not printed.*)
- No. 92... DOMINION POLICE:—Annual Return under the Act 31 Victoria, chapter 73, section 6, shewing the average number of the Dominion Police employed during each month of the year, ended 31st December, 1876; the cost of pay, and of travelling expenses, expended in respect thereof. (*Not printed.*)

- No. 93.. **MALT, DUTY ON:**—Return to Order, Instructions issued from the Inland Revenue Department to its Officers throughout the Dominion, as to what time the additional duty on malt was to take effect. (*Not printed.*)
- Return to Order, Monthly Return of the malt taken out of bond each month from the 1st July, 1876, to the 28th February, 1877. (*Not printed.*)
- No. 94.. **TOBIQUE INDIANS:**—Return to Order, Correspondence between the Government and the Tobique Indians relating to the appointment of a resident agent at that place. (*Not printed.*)
- No. 95.. **LE CRÉDIT FONCIER DU BAS CANADA:**—A statement of the property and business assets and liabilities of a Company bearing the name of "Le Crédit Foncier du Bas Canada," incorporated under Chapter 102 of the Statutes of Canada, 36 Vic., (1873), &c. (*Not printed.*)
- No. 96.. **"BERNE" POSTAL UNION:**—Return to Address, All correspondence in regard to placing the Dominion of Canada in as favourable a position as any Foreign Country, under the provisions of the Postal Union made at "Berne" on the 9th October, 1874. (*Not printed.*)
- No. 97.. **LAPSED BALANCES, &c.:**—Return to Order, Showing all amounts carried over by Orders in Council, at the end of the financial year, under the authority of Chapter 2 of the Act of last Session; with copies of the Orders in Council, and a Statement of the amounts of such lapsed balances remaining unexpended at the end of three months from that date; together with a Statement of all amounts carried forward by Orders in Council, from 1st July, 1867, showing the sums actually expended in each case, and the Parliamentary authority sanctioning the same. (*Not printed.*)
- No. 98.. **"NORTHERN LIGHT":**—Return to Address, Showing the number of passages made by the Steamship *Northern Light* between Georgetown in Prince Edward Island and Pictou, or Pictou Island in Nova Scotia and back; the number of mails carried by the said Steamship, and the number of passengers carried by her on each passage. (*Not printed.*)
- Return to Order, Showing the total amount of cost of the Steamer *Northern Light*; also an account of any and all expenditure in connection with the said Steamer, down to the 31st January last. (*Not printed.*)
- Return to Order, Contract with Mr. Sewell for building the Steamer *Northern Light*; the Report of the Inspector and Government Agent connected with the building of the said Steamer. (*Not printed.*)
- No. 99.. **MERCHANT SHIPPING:**—Return to Address, Correspondence between the Government of Canada and Her Majesty's Government in relation to Legislation affecting Merchant Shipping. (*Not printed.*)
- Instructions given to Mr. William Smith, Deputy of the Minister of Marine and Fisheries, on his recent mission to England in connection with the above subject. (*Not printed.*)
- Correspondence had in relation to such mission between the Minister of Marine and Fisheries and the said Deputy with the Report of the said Deputy, in relation to such mission. (*Not printed.*)
- No. 100.. **CANADIAN SHIPS SOLD IN FRANCE:**—Return to Address, Correspondence between the Government of Canada, the Imperial Government and any other Governments or persons on the subject of the duty imposed on Canadian ships sold in France.
- No. 101.. **STEAM COMMUNICATION, P.E.I.:**—Return to Address, Statement showing what steps have been taken by the Government, touching the opening up of steam communication in the winter season, between Prince Edward Island and the mainland, in accordance with the terms of Union. (*Not printed.*)
- No. 102.. **INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876:**—Report of the Canadian Commission of. (*Not re-printed for Sessional Papers.*)
- No. 103.. **REVENUE PAID BY EACH PROVINCE, &c.:**—Return to Order, Setting forth, as nearly as the officers of the Government can do so, the amount of the revenue paid by each Province of the Dominion, and the expenditures made therein on Dominion account during the past five years.
- No. 104.. **NAVIGATION OF AMERICAN CANALS:**—Return to Address, Correspondence between the Dominion, United States and Imperial Governments, respecting the navigation of American canals and rivers.
- No. 105.. **COAL IMPORTED INTO THE DOMINION:**—Return to Order, Quantities and value of the Coal imported into the Dominion of Canada for the six months ending 31st December, 1876.

- No. 106. HORSE SHOE BAR CHANNEL, MIRAMICHI RIVER:—Return to Order, Correspondence between the Minister of Public Works and the officer in charge of the dredging improvements and deepening of the Horse Shoe Bar Channel at the entrance of the Miramichi River. (*Not printed.*)
- No. 107. ARICHAT WEST BREAKWATER:—Return to Order, Reports and plan of Arichat West Breakwater, in the County of Richmond, Nova Scotia. (*Not printed.*)
- No. 108. SMELT FISHERIES, HARBOUR OF BATHURST:—Return to Address Orders, in Council, Rules and Regulations made in relation to the Smelt Fisheries in the Harbour of Bathurst. (*Not printed.*)
- No. 109. PILOTAGE RETURNS, CAPE BRETON:—Return to Order, Returns from Pilotage Authorities of Cape Breton for the year 1876, showing the names of all Pilots, and the amount paid to each. (*Not printed.*)
- No. 110. INTOXICATING LIQUORS, SALE OF, &c.:—Return to Address, Correspondence between the Government and the Lieutenant Governors of the different Provinces regarding the relative jurisdiction of the Dominion and Provincial Parliament over the manufacture and sale of Intoxicating Liquors. (*Not printed.*)
- No. 111. LITTLE GLACE BAY, HARBOUR FEES, &c.:—Return to Order, Return of the Harbour Master for the Port of Little Glace Bay, N.S., for the year ending 31st December, 1876; shewing the amounts of Fees collected; the names of all vessels from which fees were collected; also any Correspondence in relation to the office of Harbour Master of the Port of Little Glace Bay, N.S. (*Not printed.*)
- No. 112. TORONTO HARBOUR:—Return to Order, Statement shewing the extent and character of the Works carried on in the improvement of the Toronto Harbour during the past year. (*Not printed.*)
- No. 113. LONG ISLAND BRIDGE BY-WASH, &c.:—Return to Order, Correspondence between the Government and the Council of the County of Carleton respecting a Bridge over the By-Wash at Long Island. (*Not printed.*)
- No. 114. CULBUTE CANAL:—Return to Order, Correspondence between the Department of Public Works and the Engineer in charge of the Culbute Canal, in reference to the petition of Elizabeth Sullivan, of the Township of Pembroke, in the County of Renfrew, praying for compensation for damages alleged to have been sustained by her, through the construction of a Dam at the said Culbute Canal. (*Not printed.*)
- No. 115. PORT HOOD HARBOUR:—Return to Order, Reports and Plans of Port Hood Harbour, in the County of Inverness, made by the Engineers under the direction of the Dominion Government. (*Not printed.*)
- No. 116. RIDEAU RIVER, VILLAGE OF WELLINGTON:—Return to Address, Correspondence between the Government, and the Council of the County of Carleton, respecting a Bridge across the Rideau River, at the Village of Wellington. (*Not printed.*)
- No. 117. ST. JOHN RIVER, N.B.:—Return to Order, Reports made by the Engineer or Engineers in charge of Public Works on the improvement of the Navigation of the St. John River, N.B., since June, 1871. (*Not printed.*)
- No. 118. JUDICIAL STAFF, MONTREAL:—Return to Address, Correspondence since last Session, between the Federal and the Quebec Governments, concerning the Judicial Staff of the District of Montreal. (*Not printed.*)
- No. 119. CABLE COMPANIES, &c.:—Return to Address, Correspondence between the United States Cable Company The Anglo-American Telegraph Company and any other Marine or Telegraph Company and the Government, as well as copies of all Orders in Council affecting the same, since the twenty-first day of March, 1876.
- No. 120. MONTREAL HARBOUR COMMISSIONERS:—Return to Order, Statement as exact as possible, shewing the amount paid by each Steamboat, to the Harbour Commissioners of Montreal, during the season 1875-76, for wharfage dues,—together with the name and length of such Steamboat. (*Not printed.*)
- No. 121. MORRIS, HON. ALEXANDER:—Return to Address, Instructions to the Honourable Alexander Morris, Lieutenant-Governor of the North-West Territories; also copies of all Orders in Council relative to the said Territories since their organization, and not already published; also copies of all reports and official correspondence between the Lieutenant-Governor and the Dominion Government from the date of his appointment.

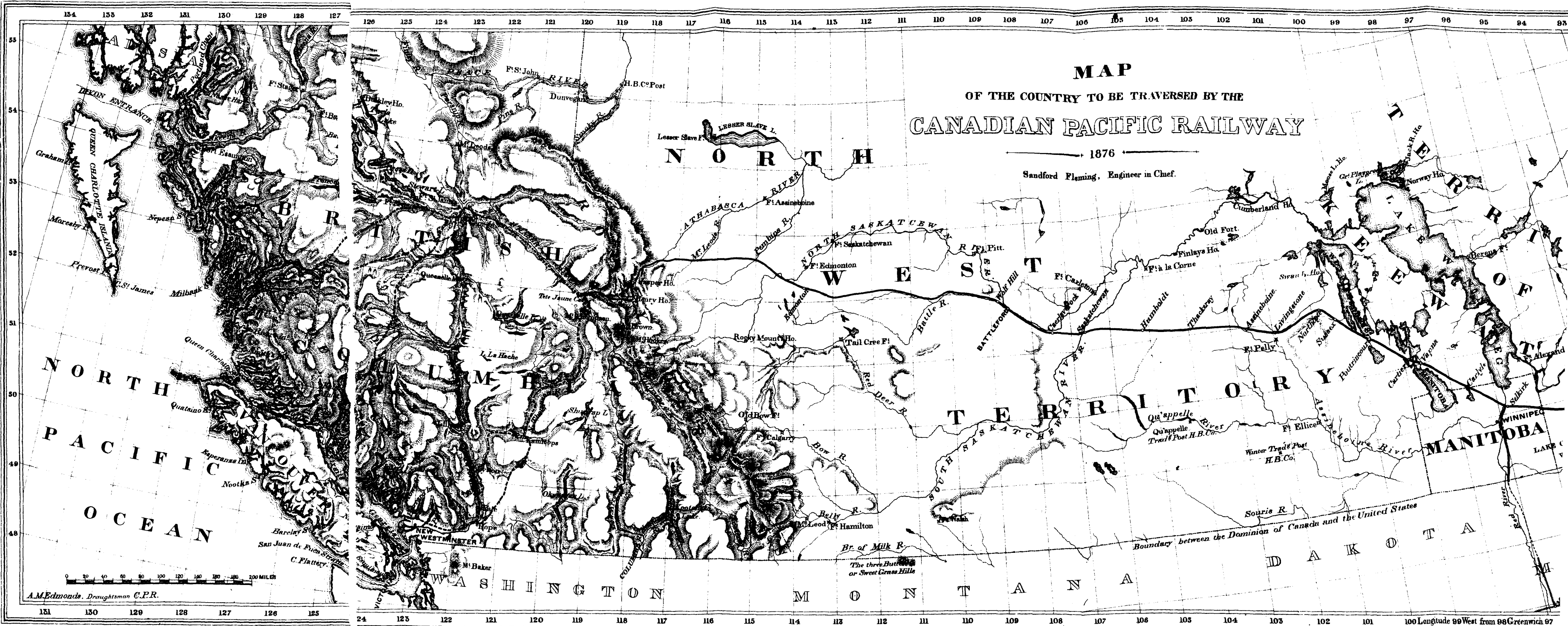
- No. 122. **ASPY BAY HARBOUR, VICTORIA**:—Return to Order, Report of the Government Engineer, on the practicability of opening Aspy Bay Harbour, Victoria, so as to admit vessels of certain tonnage, in the year 1872. (*Not printed.*)
- No. 123. **POST OFFICES AND CUSTOM HOUSES OF THE DOMINION**:—Return to Order, Shewing the number of Post Office and Custom House Buildings owned by the Dominion, designating those built since 1867; the names of the Cities and Towns where the same are situate. (*Not printed.*)
- No. 124. **ESQUIMAULT, GRAVING DOCK**:—Return to Address, Correspondence by telegraph or otherwise respecting the Graving Dock at Esquimault since July, 1874. (*Not printed.*)
- No. 125. **QUEBEC TO LAKE ST. JOHN, RAILWAY**:—Return to Order, Correspondence respecting the grant by the Dominion Government of a sum of money, to assist in the construction of the Railway from Quebec to Lake St. John. (*Not printed.*)
- No. 126. **MAIL BAG, LOSS OF, &c.**—Return to Order, Correspondence between the Postmaster General and the Post Office Inspector at Halifax and other Post Office officials, with reference to the loss of a Mail Bag between Truro and Halifax. (*Not printed.*)
- No. 127. **MOWAT, JOHN**:—Return to Order, Commission or other document appointing John Mowat a Fishery Officer in the County of Restigouche, in the Province of New Brunswick. (*Not printed.*)
- No. 128. **DEEP-SEA WEIRS OR POUNDS**:—Return to Order, Number of persons who have obtained Licences or permission from the Department of Marine and Fisheries to erect Deep Sea Weirs or Pounds for the purpose of capturing Fish at the Head-lands or Capes of the Maritime Provinces. (*Not printed.*)
- No. 129. **NOTRE DAME DE GRACE AND STE. CUNEGONDE, P.Q.**:—Return to Order, Petitions respecting the establishment of a Post Office at Notre Dame de Grace, near Montreal, and of another at Ste. Cunégonde, part of the territory of the Town of St. Henri, in the County of Hochelaga, recently erected into a separate Municipality. (*Not printed.*)
- No. 130. **NORRIS, J. G.**:—Return to Address, Correspondence with reference to the appointment of Mr. J. G. Norris, as Deputy Collector of Customs, Kootenay, British Columbia. (*Not printed.*)
- No. 131. **SCHOONER "NAPIER"**:—Return to Order, Correspondence connected with the seizure of the Schooner *Napier*, in Ingonish, in the year 1872, for smuggling, and a statement showing if the Hon. William Ross has redeemed his bonds given for the release of said vessel. (*Not printed.*)
- No. 132. **WARREN, WM.**:—Return to Order, Correspondence relating to the superannuation of William Warren, Esq., late Collector of Customs for the Port of Whitby, Ontario. (*Not printed.*)
- No. 133. **VICTORIA AND KOOTENAY, CUSTOMS STATIONS**:—Return to Address, Correspondence between the Government and Mr. C. T. Dupont, or any other parties, with reference to his inspection of the several Customs Stations between Victoria and Kootenay, in 1876.
- No. 134. **NEWCASTLE, ONT., FISH-BREEDING ESTABLISHMENT**:—Return to Order, Showing the title held by the Government to the land and other property connected with the Fish-breeding establishment at Newcastle, Ontario. (*Not printed.*)
- No. 135. **NEW BRUNSWICK, NON-TIDAL WATERS**:—Return to Order, All leases of the right to fish in the non-tidal waters of New Brunswick. (*Not printed.*)
- No. 136. **COVE FIELD, QUEBEC**:—Return to Order, Statement showing the instructions given for the division of the Ordnance property at Quebec, known as the Cove Field; the cost of dividing, &c. (*Not printed.*)
- No. 137. **GOVERNMENT DEPOSITS IN BANKS, &c.**:—Return to Order, Return of the Government deposits in the different Banks of the Dominion on the first day of each month, from January 1st, 1876, to January 1st, 1877, inclusive; and also at the agencies of such Banks and other Banking Houses in London.
- No. 138. **ILLICIT STILLS**:—Return to Order, Shewing the number of Illicit Stills seized by the Revenue Officers of the Dominion in 1873, '74 and '75. (*Not printed.*)
- No. 139. **CASCUMPEC HARBOUR**:—Return to Address, Survey and Report on the Improvement of Cascumpec Harbour, Prince Edward Island, made by C. E. Perley, Esq., C.E. (*Not printed.*)
- No. 140. **MONTREAL MUSEUM**:—Return to Address, Correspondence which has taken place between the Director of the Geological Survey and the Minister of the Interior since the 1st April, 1873, on the subject of removing the Staff and Museum from Montreal to Ottawa.

- No. 141.. **RIDEAU CANAL**:—Return to Order, Shewing the quantity and price of land purchased for the purposes of the construction and maintenance of the Kingston and Ottawa Division of the Rideau Canal. (*Not printed.*)
- No. 142.. **MAILS DELAYED, &C., GRAND TRUNK**:—Return to Order, Statement shewing the expenditure incurred by the Post Office Department for carrying the mails below Quebec, during the whole time when the Grand Trunk was stopped by snow, during the winters of 1874, 1875 and 1876. (*Not printed.*)
- No. 143.. **RAILWAY STATISTICS OF CANADA**:—Reports for the years 1875-76.
- No. 144.. **CIVIL SERVICE**:—Return, in part, to Order, For certain statistical information respecting the inside and outside Divisions of the Civil Service of Canada.
—Return to Order, for the names of persons appointed to office between the 1st of January and the 7th of November, 1873; the names of the officials whose salaries were increased during the same period; the names of those so appointed whose appointments were cancelled subsequent to the 7th of November. (*Not printed.*)
- No. 145.. **ENGINEERS' ESTIMATES, &C.**:—Return to Address, Reports and estimates of the Engineer upon the works proposed to be performed at the following ports or localities, namely:—Arisaig, N.S., Annapolis, N.S., &c., &c. (*Not printed.*)
- No. 146.. **GOVERNMENT OFFICIALS, P.E.I.**:—Return to Address, shewing the names of all Government Officials in Prince Edward Island, specifying nature of office held by each, date of appointment and amount of salary.
- No. 147.. **CHARBONNEAU AND CÔTÉ**:—Return to Address, A petition complaining of injustice done by the Montreal Harbour Commissioners, or by some person or persons in their employ, in the arbitrary dismissal of Pierre Charbonneau, Pierre Côté and several others employed on the works of the said Commissioners on the River St. Lawrence. (*Not printed.*)
- No. 148.. **BUSHBY, ARTHUR T.**:—Return to Address, Correspondence between the Dominion Government and the Local Government of British Columbia, relative to the appointment of a County Court Judge for the District of New Westminster in place of Arthur T. Bushby, deceased. (*Not printed.*)
- No. 149.. **BUFFALO IN N. W. T., PRESERVATION OF THE**:—Return to Address, Communications from the first Council of the North-West Territories in regard to the preservation of the buffalo; and all Orders in Council or Acts passed by the present Government of the North-West Territories having this object in view. (*Not printed.*)
- No. 150.. **PARRY SOUND HARBOUR**:—Return to Order, Engineer's Report of the survey of Parry Sound Harbour, made by Mr. Michaud, C.E., and others, in 1879. (*Not printed.*)
- No. 151.. **MARQUETTE, MAN., WOODLAND IN**:—Return to Order, Showing the quantity of woodland in the County of Marquette, and the number of licenses to cut wood, sold or issued by the Dominion Lands Office, in Manitoba, during the last three years, to persons not being actual settlers. (*Not printed.*)
- No. 152.. **RAILWAY FROGS, ACCIDENTS BY**:—Return to Address, Showing the number of accidents to persons caught in railway frogs; the points where the accidents occurred, and the particulars connected therewith; for the five years ending 31st December last. (*Not printed.*)
- No. 153.. **INDIAN LANDS, B.C.**:—Return to Address, Correspondence between the Local and the Dominion Governments during 1876, with reference to the adjustment of Indian lands, in British Columbia. (*Not printed.*)
- No. 154.. **KIDSTON, WILLIAM**:—Return to Order, Correspondence in connection with the defalcations of the ex-Collector of Customs, William Kidston, at the Port of Baddeck. (*Not printed.*)
- No. 155.. **COLWELL, WILLIAM**:—Return to Order, Correspondence in connection with the dismissal of William Colwell, locker in the Customs House Department, St. John, New Brunswick. (*Not printed.*)
- No. 156.. **CANADIAN SHIPPING, LIGHT DUES ON**:—Return to Address, Correspondence that may have passed during the past three years between the Government of Great Britain and the Government of this Dominion, relative to the abolition of light dues on Canadian shipping. (*Not printed.*)
- No. 157.. **FISHERIES, &C., ABOLITION OF**:—Return to Order, Papers relating to the abolition of fisheries in the rapids of the Richelieu, in front of the Village of the Canton of Chambly. (*Not printed.*)

- No. 158.. ST. PETER'S CANAL:—Return to Address, Contracts and Orders in Council during the year 1876, in connection with the enlargement of the St. Peter's Canal. (*Not printed.*)
- No. 159.. L'ISLET, &c., BREAKWATERS:—Return to Address, Instructions given to Mr. Kingsford, and correspondence in relation to repairs and other work done on the breakwaters at L'Islet, Rivière Ouelle, Rivière du Loup and Rimouski, on the south shore of the St. Lawrence, Province of Quebec. (*Not printed.*)
- No. 160.. POINT ESCUMINAC BREAKWATER:—Return to Order, Correspondence with the Government and the inhabitants of the County of Northumberland, in relation to the necessity of a breakwater for the protection of fishermen at the easterly side of Point Escuminac. (*Not printed.*)
- No. 161.. GOVERNMENT RAILWAYS—IRON RAILS:—Return to Order, Showing the quantity of iron rails removed from the Government railways—Railway Companies to which they have been loaned, &c.
- No. 162.. MOFFATT, ROBERT:—Return to Order, Letters, &c., which have passed between Robert Moffatt, of Dalhousie, N.B., and the Government of the Dominion, in respect to the transport of cargoes of rails and other railway materials from the vessels *Colonist*, *Bessie Parker* and *Stabstadt*, &c.
- No. 163.. DEPARTMENT OF JUSTICE—ORDNANCE LAND SALES:—Return to Address, Statement of all sums of money charged and received by the Department of Justice, by way of costs or moneys over due on ordnance land, sold under authority.
- No. 164.. DECK LOAD LAW:—Return to Address, Correspondence between the Government of Canada and the Inspector of Customs for the Province of Nova Scotia, or any of the Custom House officials, in relation to the violation of the Deck Load Law. (*Not printed.*)
- No. 165.. PRINCE EDWARD ISLAND RAILWAY:—Return to Address, Disbursements paid on account of the Prince Edward Island Railway up to January, 1876, together with a statement of the earnings of the Road up to that time. (*Not printed.*)
- No. 166.. NEWSPAPERS PAID POSTAGE, &c.:—Return to Order, Statement setting forth the total number of Newspapers and other periodicals in each County and City of the Dominion, which have paid postage on papers sent from "the office of publication," with the total revenue raised therefrom during the past year. (*Not printed.*)
- No. 167.. PILOTAGE, TARIFF OF:—Return to Address, Order in Council of the 5th March, ultimo, approving of a By-law of the Montreal Harbour Commissioners, in reference to the Tariff of Pilotage between Quebec and Montreal. (*Not printed.*)
- No. 168.. UPPER ST. FRANCIS, N.B.:—Return to Order, Correspondence in the possession of the Government, regarding the dismissal of the Postmaster of Upper St. Francis, in the County of Madawaska, in the Province of New Brunswick. (*Not printed.*)
- No. 169.. CAMPBELLTON AND PASPEBIAC:—Return to Order, Correspondence respecting the renewal of the contract for the transportation of the mail between Campbellton and Paspebiac. (*Not printed.*)
- No. 170.. CATTLE, IMPORTATION OF:—Return to Order, Showing the value of live cattle imported into and exported from each Province, between the 1st day of January, 1875, and the 1st day of January, 1877; the value of live cattle imported and exported, and the total value of meats, fresh or cured.
- No. 171.. "CHAMBLY" AND "CULTIVATEUR" STEAMERS:—Return to Order, Statement showing the amounts paid by the Steamer *Chambly* and the Steamer *Cultivateur*, at the St. Our's Lock on the River Chambly, during the season of 1875. (*Not printed.*)
- No. 172.. PRINCE EDWARD ISLAND, LEGAL SERVICES, &c.:—Return to Order, Of all monies paid for legal services or legal expenses in Prince Edward Island, from 1st January, 1874, to the present time. (*Not printed.*)
- No. 173.. FOG WHISTLE, CAPE D'OR:—Return to Order, Correspondence between the Government and any parties in Nova Scotia, relating to the supply of coal and water for the operation of the Fog-Whistle at Cape D'Or. (*Not printed.*)
- No. 174.. HARBOR MASTERS, SOREL, ST. JOHN, &c.:—Return to Order, Indicating the names and date of appointment of Harbour Masters at Sorel, St. John's, Three Rivers and Lachine, in the Province of Quebec, and also giving a detailed account of all fees collected by said Harbour Masters since the 15th April, 1875, up to this date, under the authority of 38 Victoria, Chapter 30, amending 37 Victoria, Chapter 34, together with the names of the ships on which such fees have been levied in each year, and the names of the masters of those ships. (*Not printed.*)

- No. 175. ST. AUGUSTIN, PARISH OF:—Return to Order, Correspondence in relation to the appointment of a new Postmaster for the Parish of St. Augustin, County of Two Mountains, and to the change in the location of the Post Office of the said Parish. (*Not printed.*)
- No. 176. CORNOCK, WILLIAM:—Return to Order, All correspondence in reference to the dismissal of Mr. Wm. Cornock from the Postmastership of Erin Village, in the County of Wellington. (*Not printed.*)
- No. 177. KENNEBEC RAILWAY, MAIL CONDUCTORS:—Return to Address, Correspondence having reference to the change of Mail Conductors on the Kennebec Railway, since the first of January, 1875;—and also the names of those parties from whom contracts were taken away since that date. (*Not printed.*)
- No. 178. PORTAGE ISLAND:—Return to Address. Correspondence between the Dominion Government and the British Government, in relation to the transfer of Portage Island, in the Bay of Miramichi, from the jurisdiction of the British Admiralty to the Dominion Government. (*Not printed.*)
- No. 179. GOVERNMENT DEPOSITS, ONTARIO BANK:—Return to Order, Correspondence between the President or Cashier of the Ontario Bank and the Hon. the Finance Minister, or the Finance Department, respecting the Government Deposits in the Ontario Bank since 1st November, 1873, to the present time.
- No. 180. BRITISH COLUMBIA MAILS:—Return to Order, Copy of every tender received since November 1st by the Postal Department, for carrying the Mails in British Columbia. (*Not printed.*)
- No. 181. SLIDE MASTERS, OTTAWA RIVER:—Return to Order, Shewing the names of the Slide Masters at each of the Slide Stations on the Ottawa River and its tributaries on the 1st day of July, 1876; the salary or remuneration paid to each, the number of pieces of timber and saw logs, respectively, passed through each of the said Slide Stations, for the year ending 1st July, 1876. (*Not printed.*)
- No. 182. QUEBEC HARBOR COMMISSIONERS:—Return to Address, Petition of the Harbor Commissioners of Quebec, praying for the guarantee of the Government for an additional sum of \$250,000, in order to complete improvements. (*Not printed.*)
- No. 183. KANOURASKA COURT HOUSE:—Return to Address, A statement of debentures issued by the Government of Canada, for the purchase of a building for the Court House and Gaol of the District of Kanouraska, &c. (*Not printed.*)
- No. 184. ST. JEAN L'EVANGELISTE DE LA NOUVELLE POST OFFICE:—Return to Address, Correspondence on the subject of the closing of the Post Office in the vicinity of the church St. Jean L'Evangeliste de la Nouvelle. (*Not printed.*)
- No. 185. DEWE, JOHN:—Return to Order, Commission or other documents appointing John Dewe, Post Office Inspector, and also of all orders defining his duties and functions. (*Not printed.*)
- No. 186. NASE, J. MURRAY:—Return to Order, Correspondence in connection with the dismissal of J. Murray Nase, Postmaster, at the mouth of the Nerpis, King's Co., N.B. (*Not printed.*)
- No. 187. LETTERS, UNPREPAID:—Return to Order, Correspondence between the Council of the Quebec Board of Trade, and the Dominion Government, relating to the rule in existence in regard to unprepaid letters. (*Not printed.*)
- No. 188. BASS AND GASPERAUX FISHERIES, MIRAMICHI:—Return to Address, All Reports to Council in relation to the Bass and Gasperaux Fisheries, in the Rivers Napan and Black River, Miramichi, and the shores of the vicinity of the same. (*Not printed.*)
- No. 189. LACHINE CANAL:—Return to Order, Statement shewing the names and salaries or wages of each officer composing the Government staff of the Lachine Canal for 1875-6 and 1876-7; and the amount of contingencies in connection with the said staff for each of these years. (*Not printed.*)
- No. 190. LAGACÉ, BENJAMIN:—Return to Order, Correspondence respecting the appointment of Mr. Benjamin Lagacé as Postmaster of Jonquières, in the County of Chicoutimi, &c. (*Not printed.*)
- No. 191. NORTH AMERICAN BOUNDARY COMMISSION:—Message, transmitting Despatch, dated 1st September, 1876, from H. M. Secretary of State for the Colonies, relative to the North American Boundary Commission, together with a record of the proceedings, at the meeting held by the Commissioners on the 29th of May last. (*Not printed.*)
- No. 192. CARPENTER & CO.:—Return to Address, Returns of all moneys paid to Carpenter & Co., together with Orders in Council recommending such payment on account of the Dawson Route Subsidy, from 1st January, 1877, to 31st March, 1877. (*Not printed.*)

-
- NO. 193. CANADA CENTRAL EXTENSION, ENGINEER'S REPORT:—Return to Order, Engineer's Report of the Bonnechère and other possible routes of the Canada Central Extension. (*Not printed*)
- NO. 194. GEOLOGICAL SURVEY OF CANADA:—Report of Progress of the Geological Survey of Canada, by Alfred R. C. Selwyn, F.R.S., F.G.S., Director, for the year 1875-76. (*Not re-printed in Sessional Papers.*)
- NO. 195. MACDONALD, RIGHT HON. SIR J. A.:—Return to Order, Statement of the suits and legal matters in which the legal firm of the Honorable Sir John A. Macdonald, M.P., or any partner of his said firm was instructed by his Department to act on behalf of the Crown, during his tenure of office as Minister of Justice and Attorney-General of Canada. (*Not printed.*)
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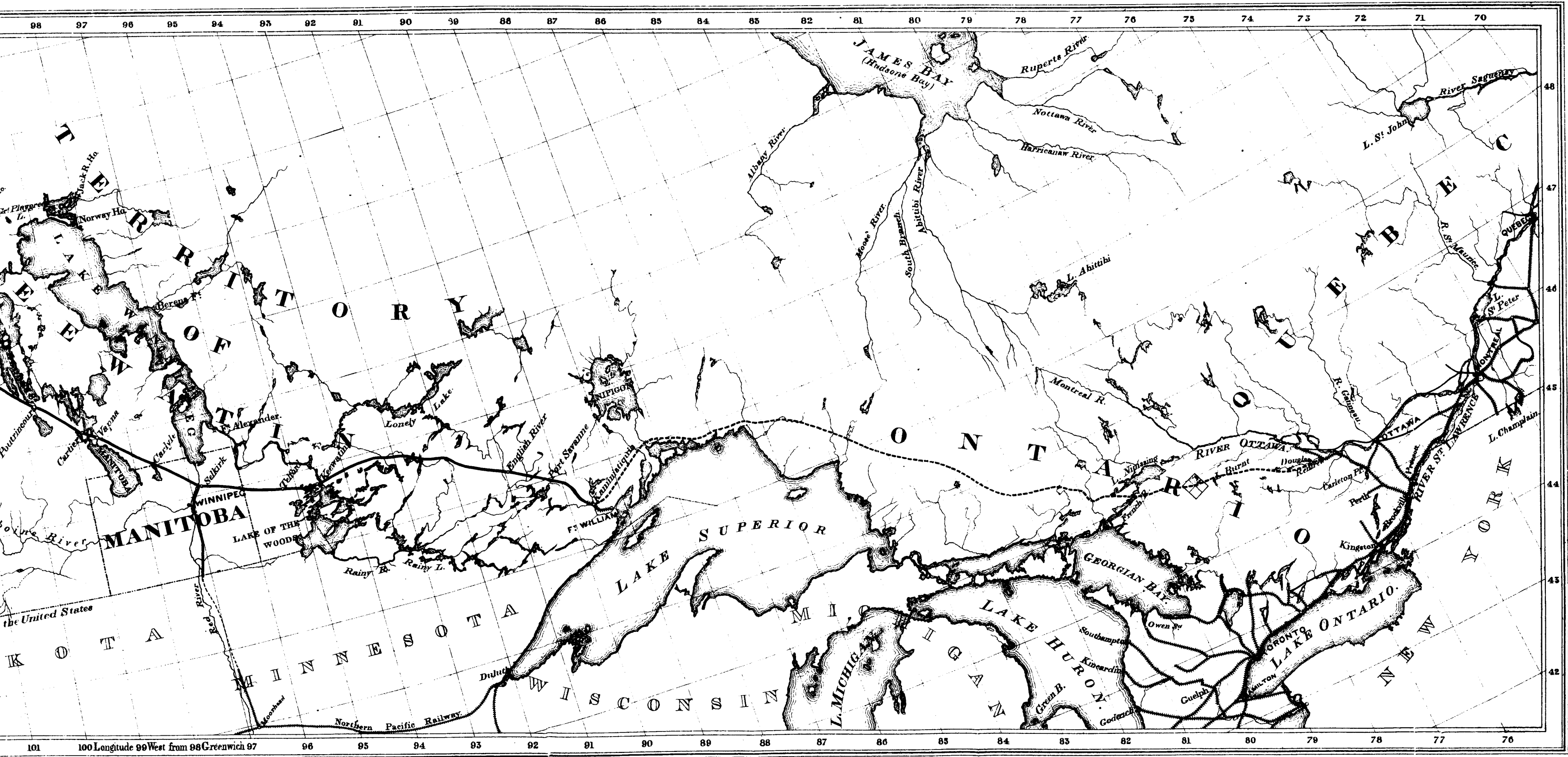


MAP
OF THE COUNTRY TO BE TRAVERSED BY THE
CANADIAN PACIFIC RAILWAY

1876
 Sandford Fleming, Engineer in Chief.

A. Edmonds, Draughtsman C.P.R.

Photo-Lith. by the Burland-Desbarats Lithographic Co.



98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70

101 100 Longitude 99 West from 98 Greenwich 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76

48

47

46

45

44

43

42

MANITOBA

LAKE SUPERIOR

LAKE MICHIGAN

LAKE HURON

LAKE ERIE

LAKE ONTARIO

MINNESOTA

WISCONSIN

MICHIGAN

ONTARIO

NEW YORK

SASKATCHEWAN

ALBERTA

BRITISH COLUMBIA

QUEBEC

ONTARIO

NEW YORK

the United States

Northern Pacific Railway

100 Longitude 99 West from 98 Greenwich 97

96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76

GENERAL REPORT

OF THE

MINISTER OF PUBLIC WORKS,

FOR THE

FISCAL YEAR ENDED 30th JUNE,

1876,

FURNISHED IN COMPLIANCE WITH THE PROVISIONS OF THE ACT THIRTY FIRST
VICTORIA, CHAPTER TWELVE, SECTION NINETEEN.

PRINTED BY ORDER OF THE HOUSE OF COMMONS.



OTTAWA:
PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.
1877.

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REPORT

OF THE

MINISTER OF PUBLIC WORKS,

FOR THE

FISCAL YEAR ENDED 30TH JUNE, 1876.

To His Excellency the Right Honorable Sir Frederick Temple, Earl of Dufferin, Viscount and Baron Clandeboye of Clandeboye, in the County Down, in the Peerage of the United Kingdom, Baron Dufferin and Clandeboye, of Ballyleidy and Killeleagh, in the County Down, in the Peerage of Ireland, and a Baronet, Knight of The Most Illustrious Order of Saint Patrick, and Knight Commander of The Most Honorable Order of the Bath, Governor General of Canada, and Vice Admiral of the same :

MAY IT PLEASE YOUR EXCELLENCY :

I have the honor to submit the Annual Report of the Department of Public Works, for the year 1875-6 in accordance with the Statute.

A. MACKENZIE,
Minister of Public Works.

DEPARTMENT OF PUBLIC WORKS,
Ottawa,
30th December, 1876.

REPORT.

1875--1876.

To the Honorable

ALEXANDER MACKENZIE,

&c., &c., &c.,

Minister of Public Works.

SIR,

I have the honor herewith to lay before you the Annual Report of the Department compiled in conformity with your instructions.

The report sets forth the transactions and general expenditure with the cost of maintenance of the various Public Works during the last fiscal year.

Appendix No. 1, pages 5-8, shews this expenditure in detail.

The Annual Reports of Superintendents, with general and special Reports from the Departmental Engineers, are given in the Appendix.

The works under the control of the Department are as follows:—

THE CANALS.

WORKS ON NAVIGABLE RIVERS.

HARBORS AND PIERS.

SLIDES AND BOOMS.

PUBLIC BUILDINGS.

GOVERNMENT RAILWAYS.

NORTH-WEST COMMUNICATION.

PACIFIC RAILWAY.

PUBLIC WORKS, BRITISH COLUMBIA.

CANALS.

The Canals of the Dominion have been constructed on the following routes of inland navigation:—

1. The River St. Lawrence and Western Lakes.
2. The Ottawa, to the City of Ottawa.
3. The Rideau navigation from Ottawa to Kingston.
4. The River Richelieu to Lake Champlain.
5. St. Peter's Canal, Cape Breton, Nova Scotia.

RIVER ST. LAWRENCE AND LAKES.

This navigation extends from the Straits of Belle-Ile, Newfoundland, to Duluth, at the head of Lake Superior, a distance of 2,384 statute miles.

Lake Superior is about 600 feet above the highest tidal flow of the St. Lawrence, at Three Rivers.

The canals on the route are the Lachine, Beauharnois, Cornwall, Farran's Point, Rapid Plat, Galops and Welland. Their total length is 70.83 miles; total lockage, 536½ feet; number of locks, 54.

The St. Mary Canal is situated on the United States' side of the channel, and was constructed by that Government to avoid the St. Mary Rapid. It connects Lakes Huron and Superior. It is 1.17 miles long, and has 18 feet lockage, with a depth of water on sills of 12 feet.

A statement of distances, and sections of navigation, from the Straits of Belle-Ile to Duluth, at the head of Lake Superior, are given. (Appendix 2, page 9, table A.)

LACHINE CANAL.

Length of Canal.....	8½ statute miles.
Number of locks.....	5
Dimensions of locks.....	200 feet by 45 feet.
Total rise of lockage.....	44½ feet.
Depth of water on sills {	
at two locks.....	16 "
at three locks.....	9 "
Breadth of canal at bottom.....	80 "
Breadth of canal at water surface.....	120 "

This canal extends from the City of Montreal to the Village of Lachine, thereby enabling vessels to avoid the St. Louis Rapids, the first series of rapids which bar the ascent of the River St. Lawrence. They are 986 miles distant from the Straits of Belle-Ile.

This canal was closed on the 30th November, 1875, and opened the 1st May, 1876.

Water was let into the canal on the 20th April.

The navigation was uninterrupted.

The slope walls were repaired. The walls of Lock No. 2, Basin No. 2 and five weirs were pointed.

New gates were placed at the lower end of Lock No. 2; the gates of weirs of Basin No. 2 were furnished with lifting gear; valves and chain rollers of Locks Nos. 3 and 4 and lower gates of No. 5 repaired, and the lower gates of No. 1 replaced.

All the lock gates are in good order.

Bridges.—The heel of Brewster's Bridge was repaired, Bridge No. 1 was provided with new rollers. The bridges are in good working order.

The ice last winter injured the wing dam. Several of the boom piers require repair. Excepting the interruption caused by the carelessness of the proprietors of rafts at Lachine the general working of traffic was satisfactory (Appendix 3, page 11)

DREDGING.

The bottom of the canal between St. Gabriel Lock and the railway bridge was cleaned out.

The upper entrance of the canal was cleared from the boulders deposited by ice the previous spring. (Appendix 3, page 12.)

NEW WORKS.

The new work at Montreal Harbor will form a new entrance to connect with Basin No. 2. It includes 2 lower locks with an intermediate basin 540 feet long and of an average width of 260 ft. adapted to 18 ft. on the sills. These locks and basins are located on the river side of the present locks. The latter will be maintained in use to form a second outlet from the canal at Basin No. 2, itself to be deepened to a corresponding depth to Wellington Bridge, at which locality it connects with Wellington Basin. No. 2 Basin is also to be enlarged by the removal of the angular piece of ground fronting the hydraulic lots on Mill Street.

Wellington Basin 1250 feet long and 225 feet wide now in course of construction will also have a depth of 19 feet. A second parallel basin, the Mill Street Basin, 1250 feet by 250 feet wide, is projected. It is not now under contract.

The canal continues from Wellington Basin to the Côte St. Paul Lock at a uniform width of 200 feet, with a depth of 13 feet, such being the present limit of the work. Two basins, Basins Nos. 3 and 4 on the north side of the canal, 750 feet long by 150 feet wide, are projected but not under contract. In the western of the two it has been proposed to place three Graving Docks.

From Côte Saint Paul Lock to Lachine the canal will be enlarged to an average width of 150 feet.

The locks will be 270 feet by 45 feet between the quoins, with a depth of 14 feet on the sills.

The excavation of the canal proper is, for the present, limited to 13 feet, with the eventual design of increasing it to 15 feet, should the exigences of commerce dictate this policy. The locks and all permanent structures are being constructed to the depth of 14 feet on the lock sills.

The new locks are independently located, so as in each case to duplicate the lockage

A new entrance will be given to the canal in Lachine, to form large additional harbor accommodation.

MONTREAL DIVISION.

Sections 1 and 2. Contractors, Messrs. James Worthington & Co.

Section 1, includes two locks with intervening basin.

Section 2.—The construction of Wellington Basin and enlargement and deepening of Basin No. 2.

Section 3.—From below Wellington Bridge to a short distance above St. Gabriel Lock; distance 4,200 feet. Contractors, Messrs McNamee, Gaherty and Fréchette.

Section 4.—From above Saint Gabriel Lock to above railway bridge; distance, 3,800 feet. Contractors, Messrs. Whitney and Dotey.

Section 5.—From above railway bridge to below St. Paul's lock; distance, 4,200 feet. Contractor, Mr. Alphonse Charlebois.

Sections 6 and 7.—From below St. Paul's Lock to opposite the land of Thierry; distance, 10,000 feet. Contractors, Messrs. Davis and Sons.

LACHINE DIVISION.

Section 8.—From opposite the land of Thierry to land of Widow McNaughton; length, 7,500 feet. Contractors Messrs O'Brien and Sullivan.

Section 9.—From the land of Widow McNaughton to below guard lock; length, 6,000 feet. Contractors, Messrs. John Lyons and Co.

Section 10.—From below guard lock to river entrance; length, 1,400 feet. Contractors, Messrs Rodgers, Kelly and Co.

Section 11.—Forming river entrance and harbor at Lachine; length, 46,200 feet. Contractors, Messrs. William Davis and Son.

Lock No. 1.—The walls are nearly completed.

Lock No. 2.—The chamber walls have been built to a height of 3 feet, and upper recess and breast wall to the height of 5 feet.

Basin No. 2.—The excavation is in progress.

Wellington Basin.—The excavation is nearly completed, the dock walls are well advanced and brick sewer finished.

Section 3.—Excavation was commenced on 3rd January last; much material has been delivered.

Sections 4, 5, 6 and 7.—Work has been commenced on these sections.

Section 8.—Work has not been commenced, the Contractors being engaged in procuring dredges and other plant.

Sections 9 and 10.—Work was commenced during May and June, and has been vigorously prosecuted.

Section 11.—Material is being delivered for this work.

BEAUHARNOIS CANAL.

Length of canal.....	11½ statute miles
Number of locks.....	9
Dimensions of locks.....	200 feet by 45 feet.
Total rise of lockage.....	82½ feet.
Depth of water on sills.....	9 “
Breadth of canal at bottom.....	80 “
Breadth of canal at water surface.....	120 “

This canal lies on the south side of the St. Lawrence, 15½ miles from the head of the Lachine Canal, and runs for some distance inland from the river, connecting Lakes St. Louis and St. Francis, and avoiding the three rapids known respectively as the “Cascades,” “Cedars” and “Coteau.”

This canal closed on the 25th November, 1875, and opened on the 1st May, 1876.

The traffic was interrupted for 129 hours. The gates at Lock No. 7, the lower gates of Locks Nos. 5 and 9 were rebuilt and furnished with new suspension gear; six pairs of gates were rebuilt; the upper gates of Lock No. 9 were renewed; the gates at Locks Nos. 8, 10, 11 and 13 were repaired.

The Swing Bridge at St. Timothy was rebuilt; new pivots placed to swing bridges at Locks Nos. 9, 12 & 13 and flooring renewed. The bridges over weirs at Locks Nos. 7, 8 and 11, and 8 farm bridges have been repaired.

The lock houses at Locks Nos. 8, 11, 12 and 13 were repaired; likewise dwelling of the Collector and office of the Superintendent.

The slope walls on the whole line were repaired; 900 feet of bank opposite the Big Basin was raised 18 inches.

A leak in St. Timothy Culvert was made good.

The walls of the Valleyfield Culvert were repaired.

The protection pier and wharf at upper entrance were repaired.

All drains and side ditches were cleaned.

The banks and adjoining lands were much damaged by the gates which were carried away, necessitating the employment of a large force of men to clear away the *debris*. (Appendix 3, page 14.)

CORNWALL CANAL.

Length of canal.....	11½ statute miles.
Number of locks.....	7
Dimensions of locks.....	200 feet by 55 feet.
Total rise of lockage.....	48 feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	100 "
Breadth of canal at water surface.....	150 "

From the head of the Beauharnois to the foot of the Cornwall Canal, a navigable interval occurs 32¾ miles through Lake St. Francis.

The Cornwall Canal enables vessels to avoid the Long Sault Rapids.

The canal was closed from the 6th Decemher, 1875 to the 1st May, 1876.

The navigation was uninterrupted. Five new lock gates were placed in position.

In Locks Nos. 15 and 16 new segments were relaid.

The slope walls were raised and the ditches opened. (Appendix 4, page 38.)

NEW WORK.

The line for enlargement has been surveyed, the lower entrance at Cornwall has been located.

Tenders will be immediately called for Section 1 to include the lower entrance and the 2 first locks.

 WILLIAMSBURGH CANALS.

The Farran's Point, Rapid Plat and Galops Canals are collectively known as the Williamsburgh Canals.

 FARRAN'S POINT CANAL.

Length of canal.....	$\frac{3}{4}$ mile.
Number of locks.....	1
Dimensions of lock.....	200 feet by 45 feet.
Total rise of lockage.....	4 feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal at water surface.....	90 "

From the head of the Cornwall Canal to the foot of Farran's Point Canal, the distance on the St. Lawrence is five miles. This canal enables vessels ascending the river to avoid the Farran's Point Rapids. Descending vessels run the rapids with ease and safety.

It was closed 2nd December, 1875; opened 1st May, 1876.

There was no stoppage to navigation.

The lock gates have been repaired.

The pier destroyed by fire in 1874 was rebuilt during the winter. (Appendix 5, page 39.)

 RAPID PLAT CANAL.

Length of canal.....	4 miles.
Number of locks.....	2 "
Dimensions of locks.....	200 feet by 45 feet.
Total rise of lockage.....	11 $\frac{1}{2}$ feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal at surface of water.....	90 "

From the head of Farran's Point Canal to the foot of Rapid Plat Canal, there is a navigable stretch of 10 $\frac{1}{2}$ miles.

This canal enables ascending vessels to avoid the Rapid Plat Rapids. Descending vessels run the rapids safely.

Closed 2nd December, 1875; opened 1st May, 1876.

The navigation was uninterrupted.

The banks received some stone protection and some slight repairs have been made to the lock and gates. (Appendix 5, page 39.)

GALOPS CANAL.

Length of canal.....	7 $\frac{5}{8}$ miles.
Number of locks.....	3 “
Dimensions of locks.....	200 feet by 45 feet.
Total rise of lockage.....	15 $\frac{3}{4}$ “
Depth of water on sills.....	9 “
Breadth of canal at bottom.....	50 “
Breadth of canal at surface of water.....	90 “

From the head of Rapid Plat Canal to the foot of the Galops Canal, the St. Lawrence is navigable for 4 $\frac{1}{2}$ miles.

This canal enables vessels to avoid the rapids at Point aux Iroquois, Point Cardinal, and the Galops.

Closed 2nd December, 1875 ; opened 1st May, 1876.

The navigation was uninterrupted.

Gates of Locks Nos. 25 and 26 were rebuilt.

The canal has been kept in good repair. (Appendix 5, page 39.)

WELLAND CANAL.

MAIN LINE FROM LAKE ONTARIO TO LAKE ERIE.

Length of canal.....	27 miles and 1,099 feet.
Pairs of guard gates.....	3
Number of lift-locks.....	27
Dimensions of locks..	{ 2 locks of 200 feet by 45 feet.
	{ 24 “ 150 “ 26 $\frac{1}{2}$ “
	{ 1 “ 230 “ 45 “
Total rise of lockage.....	330 feet.
Depth of water on sills.....	10 $\frac{1}{4}$ “

RIVER WELLAND BRANCHES.

Length of canal :—Port Robinson Cut to River Welland.	2,622 feet.
“ From Welland Canal to River Welland, <i>via</i> lock at Aqueduct.....	300
“ Chippawa Cut to River Niagara.....	1,020 “
Number of locks :—One at Aqueduct and one at Port Robinson	2 “
Dimensions of locks.....	150 by 26 $\frac{1}{2}$ feet.
Total lockage from Welland Canal down to River Welland	17 feet.
Depth of water on sills.....	9 ft. 10 in.

GRAND RIVER FEEDER.

Length of canal.....	21 miles.
Number of locks.....	2
Dimensions of locks.	} 1 of 150 by 26½ feet. 1 of 200 by 45 "
Total rise of lockage.....		7 to 8 feet.
Depth of water on sills.....	10½ feet.

PORT MAITLAND BRANCH.

Length of canal.....	1¾ miles.
Number of locks.....	1
Dimensions of lock.....	185 by 45 feet.
Total rise of lockage.....	8½ feet.
Depth of water on sills.....	11 "

The breadth of the main line of this canal, at present, varies as follows:—

Section.	Distance.	Breadth at bottom.	Breadth at surface.
	Miles.	Feet.	Feet.
Dalhousie to Thorold	9½	70	110
Thorold to Allanburgh.....	3½	26	66
Allanburgh to Ramey's Bend.....	12½	50	90
Ramey's Bend to Port Colborne.....	1¼	58	58
Port Colborne to outer end of West Pier	¾	90	.....
Port Robinson to Chippawa, River Welland	8¼	.....	200
Dunville navigable feeder.....	21	26	60 to 70
Port Maitland Branch.....	1¼	45	85

It was closed 15th December, 1875; opened 17th April, 1876.

There was a suspension of navigation for 72 hours, owing to two accidents.

The water supply has been greater than for the previous two years.

The traffic has been light but the returns shew a slight improvement over last year.

The sum of \$2,302.67 was collected during the year in fines and damages. (Appendix 6, page 43.)

DIVISION No. 1, FROM PORT DALHOUSIE TO FOOT OF LOCK No. 20. 8¼ MILES.

New gates were placed to Locks Nos. 1, 4, 6, 10 14 and 17; bridges and weirs were

repaired at Locks Nos. 2, 4, 1 and 17, and the Collector's houses at Nos. 1, 2 and 15 were repaired. (Appendix 6, page 40.)

DIVISION No. 2, FROM LOCK No. 20 TO JUNCTION.

Eight new gates are in reserve. General repairs have been executed throughout. The bridges were repaired at Allanburg, Port Robinson and Welland.

Four new gates were put in at Allanburg and lock-tender's house repaired. The banks were well kept up and a portion faced with stone. A new floating fender was placed in front of swing bridge at Welland. (Appendix 6, page 41.)

DIVISION No. 3, FROM JUNCTION TO PORT COLBORNE, $7\frac{1}{4}$ MILES.

The stone bridge was repaired. A new ferry boat was built, Collector's house repaired, the banks repaired, and additional stone walling made.

DUNNVILLE DIVISION, THE FEEDER FROM JUNCTION TO DUNNVILLE AND PORT MAITLAND BRANCH, $22\frac{3}{4}$ MILES.

The banks have been repaired and faced with stone near Stromness, and new house for lock tender built at Junction.

Two new gates were put in at Port Maitland.

Mr. Haney's contract for building west pier has been completed.

Sulphur Creek bridge has been replanked and a new pier placed under east end. Additional stone has been placed at Dunnville for protection. (Appendix 6, page 42.)

NEW WORKS.

The scheme of the new work is the ultimate establishment of a navigation with locks 270 feet long, 45 feet wide with 14 feet depth on the sills, the Canal proper having a width of 100 feet at bottom with a depth of 15 feet.

For the present, the depth of the Canal between the locks is 13 feet. The locks which can hereafter be raised with moderate expense are at present constructed with 12 feet on the sills.

The entrance and other locks not coming within this category are constructed with a depth of 14 feet.

The outlet of the present canal at Port Dalhousie has been maintained for the enlarged navigation. It possesses many advantages being unobstructed by reefs or shoals, while the soundings are regular and the anchorage good.

The Harbor is, moreover, easy of access and affords good shelter to vessels with water 5 fathoms in depth to within 200 yards of the shore. It is open throughout the winter except in extreme weather. Within the last 30 years in two or three winters only, vessels would have been unable to enter. Previous to the construction of railways, trading craft plied in midwinter between this port and Toronto, and

the route could still be maintained if profitable. The Harbor is usually clear of ice several days before the general opening of navigation.

The new canal leaves the present line at May's Ravine, the inner basin, and continues thence on a separate location $8\frac{3}{4}$ miles to Marlatt's Pond near Thorold. The new line between the above points is $\frac{3}{4}$ of a mile shorter than the present canal.

The new entrance lock is on the right bank of the creek near the present regulating weir.

Lock No. 2 is situated at the mouth of May's Ravine, and this and the succeeding Locks Nos. 3, 4 and 5 constitute a group by which the level of the lower plateau is attained. The interval between the locks is generally 1,200 feet.

The distance from Lock No. 5 to Lock No. 6 is about 4,000 feet. Locks Nos. 6 and 7 are about 1,000 feet apart.

Locks Nos. 8 and 9 are near the crossing of the Queenston Road at the St Catharines Cemetery.

All the locks up to No. 9 have 14 feet lift.

From Lock No. 4. to Lock No. 11 there is a continuous straight line 4.4 miles in length. Between Locks Nos. 11 and 12 the canal deflects 20 degrees to the west. The succeeding Locks Nos. 12, 13, 14, 15 and 16 are on the same straight line, which is about 4,500 feet in length. After Lock No. 11, the intervals between the locks have been determined so as to admit two of the largest vessels on the route passing with ease.

The rise from Lock No. 11 to Lock No. 24 which takes place in a distance of 14,100 feet, is 196 feet.

The canal curves along the side of the Niagara escarpment and thence turns to a ravine, the head waters of the Ten Mile Creek behind Thorold. It is cut through the ridge dividing this creek from the Beaver-dam valley: the location at this point corresponding to what is known as the Little Deep Cut on the present canal.

The total mean rise from Lake Ontario to Marlatt's Pond is 321 feet, overcome by 24 locks on the new canal.

On the present canal 25 locks ascend to that height.

The canal is crossed by two railways.

1. *The Welland Railway.*

This line will cross by a swing bridge.

A diversion of over a mile of railway has been made so that this plan could be followed.

2. *The Great Western Railway.*

The principle of crossing the canal by a swing bridge with a line of the impor-

tance of this Railway, was in itself, both in the interests of the railway and of the canal so objectionable, that it was decided to pass the line under the canal by tunnel.

The line is diverted to the extent of $1\frac{1}{2}$ miles to obtain a fit location.

The railway tunnel will be 750 feet in length, and is situated 1,850 feet to the south of the present crossing of the canal to the north east of Thorold.

The route between Marlatt's Pond and Allanburg, a distance of about $3\frac{1}{4}$ miles, has not yet been determined.

From Allanburg south, the work will be limited to widening and deepening the prism of the existing canal to the extent of making Lake Erie the source of supply. The establishment of this level will do away with the necessity of locking down from the Grand River level to the Lake Erie level. The gates at Port Colborne will consequently be limited to the duty of regulating the water supply of the canal.

On the Northern division there are 20 sections, on the Southern 16. 27 are placed under contract. Of these 9 remain unlet, 4 on the northern division, 5 on the southern, viz:

Sections 17, 18, 19 and 20 from Marlatt's Pond to Allanburg, and 27, 28, 33, 34, 35, between Port Robinson and Port Colborne.

The entrance at Port Colborne is being deepened to 17 feet below the lowest level of Lake Erie.

A large quantity of rock has been removed. The entrance piers are being extended 1,000 feet. When completed Port Colborne will have a safe entrance and furnish a good harbor.

BURLINGTON BAY CANAL.

Length of canal.....	$\frac{1}{2}$ mile.
No locks on this canal.	
Average breadth between piers.....	138 feet.
Narrowest	108 "

This canal is cut through the sand bar which separates Burlington Bay from Lake Ontario, and is navigable for vessels drawing ten feet of water. It gives access to the Port of Hamilton, and to the Town of Dundas *via* the Desjardins Canal.

This canal closed on 11th December 1875, and opened 28th April 1876.

Some repairs have been executed.

The waling and planking destroyed by fire have been renewed.

Stone filling has replaced the material washed away.

Additions have been made to the lighthouse crib.

Repairs have been executed to ferry scow.

(Appendix 7, page 45.)

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the harbor of Montreal to the port of Kingston, passing through the Lachine Canal, the navigable sections of the Lower River Ottawa and the Ottawa Canals, to the City of Ottawa, thence by the Rideau Canal to Kingston on Lake Ontario,—a total navigation of $246\frac{1}{4}$ miles.

After leaving the Lachine Canal, the works constructed to overcome the difficulties of navigation are :—

- The St. Anne's Lock ;
- Carillon Canal ;
- Chute à Blondeau Canal ;
- Grenville Canal ;
- Rideau Navigation ;

The united length of these five works is $134\frac{3}{8}$ miles ; their total lockage $533\frac{1}{2}$ feet—(356 $\frac{1}{2}$ rise, 177 fall)—number of locks 59.

The following table exhibits the intermediate and total distances from Montreal Harbor to the principal point on this route :—

Sections of Navigation.	Intermediate distances.	Total distances from Montreal.
The Lachine Canal.....	$8\frac{1}{2}$	.....
From Lachine Canal to St. Anne's Lock.....	15	$23\frac{1}{2}$
St. Anne's Lock and Piers.....	$\frac{1}{8}$	$23\frac{3}{8}$
From St. Anne's Lock to Carillon Canal.....	27	$50\frac{3}{8}$
The Carillon Canal.....	$2\frac{1}{8}$	$52\frac{1}{4}$
From the Carillon Canal to Chute à Blondeau.....	4	$56\frac{1}{4}$
Chute à Blondeau Canal.....	$\frac{1}{8}$	$56\frac{3}{8}$
From Chute à Blondeau Canal to Grenville Canal.....	$1\frac{3}{8}$	$58\frac{1}{4}$
The Grenville Canal.....	$5\frac{1}{4}$	64
From the Grenville Canal to entrance, Rideau Navigation.....	56	120
Rideau Navigation, ending at Kingston.....	$126\frac{1}{4}$	$246\frac{1}{4}$

ST. ANNE'S LOCK.

Length of canal.....	$\frac{1}{2}$ mile.
Number of locks.....	1
Dimensions of lock.....	190 feet by 45 feet.
Total rise of lockage.....	3 feet.
Depth of water on sills.....	} 6 feet at low water. 7 feet at ordinary high water.

This work, with guide piers above and below, enables vessels to surmount the St. Anne's Rapids, between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains, $23\frac{1}{2}$ miles from Montreal Harbor.

This lock was closed the 22nd November 1875 and opened the 1st May, 1876.

Navigation was uninterrupted.

During May the water was 18 $\frac{1}{2}$ inches in depth on the lock walls, one foot higher than any recorded level.

This extreme level necessitated the construction of temporary dams on each side of the lock above lower gates to allow the continuance of navigation.

The wing dam was repaired, two guide piers were restored, lock walls were pointed, Collector's house repaired.

The whole superstructure of mooring pier below lock on north side was carried away by high water in May. (Appendix 3, page 16.)

NEW WORKS.

A new channel is being formed 1,200 feet in length by 120 feet wide, 10 feet 6 inches deep at low water, across the shoal below the lock to the deep water channel by Ile Perrot, the sides being formed of continuous cribwork.

The work has been carried on satisfactorily.

It is anticipated that it will be finished before the low water of 1877. (Appendix 3, pages 16 and 31.)

THE CARILLON CANAL.

Length of canal.....	$2\frac{1}{2}$ miles.
Number of locks.....	3 (two rising—one falling.)
Dimensions of locks :—Lift Lock, No. 1....	128 feet x $32\frac{1}{2}$ feet.
do No. 2....	$126\frac{1}{2}$ " x $32\frac{1}{2}$ "
Guard Lock, No. 3.	$126\frac{1}{2}$ " x $32\frac{1}{2}$ "
Total lockage.....	$34\frac{3}{4}$ " { $21\frac{3}{4}$ upwards. 13 downwards.
Depth of water on sills.....	6 "
Breadth of canal at bottom.....	30 "
Breadth of canal at water surface.....	50 "

This canal enables vessels to avoid the Carillon Rapids.

From St. Anne's Lock to the foot of the Carillon Canal, a navigable interval of twenty-seven miles, through the Lake of Two Mountains and the River Ottawa, occurs.

It was closed from the 20th November, 1875 to the 1st May, 1876.

The locks were pointed and the structures repaired.

2 sets of gates were rebuilt.

Owing to the high water, the canal was closed on the 14th of May and the river dammed back to prevent it flowing through the canal, but considerable damage was caused by the overflow. (Appendix 3, page 17.)

CHUTE A BLONDEAU CANAL.

Length of canal.....	$\frac{1}{2}$ of a mile.
Number of locks.....	1
Dimensions of lock.....	130 $\frac{5}{8}$ feet x 32 $\frac{5}{8}$ feet at upper end and 36 $\frac{1}{2}$ feet at lower end.
Total rise of lockage.....	3 $\frac{3}{4}$ feet.
Depth of water on sills.....	6 "
Breadth of canal at water surface.....	30 "
Breadth of canal at bottom.....	30 "

Between the Carillon and Chute à Blondeau Canals there is a navigable stretch of four miles. This canal is cut through solid rock, and has only one lock: it is only used by vessels going up the river. All down vessels run the rapids, and avoid the canal.

Closed 20th November, 1875; opened 6th May, 1876.

This canal received the ordinary repairs.

On the 10th of May last, the water of the Ottawa rose 20 inches above the coping and continued to rise to the height of 4 feet. The navigation was therefore closed until the 1st of June, when by the construction of a dam of timber 2 feet in height the navigation was reopened. (Appendix 3, page 17.)

NEW WORKS.

These works described in last year's report, page 15, consist of a dam 1,800 feet in length with a timber slide 600 feet in length and 120 feet wide.

A canal $\frac{3}{4}$ of a mile long, with 2 locks, is in course of construction on the south side to overcome the difference in level now locked-up by the Carillon and Chute à Blondeau Canals.

Fair progress has been made in the canal and lock.

But little permanent work has been done to the dam. (Appendix 3, pages 17 and 33.)

THE GRENVILLE CANAL.

Length of canal.....	5 $\frac{3}{4}$ miles.
Number of locks.....	7
Dimensions of locks—Lift Lock No. 5 } Combined..	{ 130 $\frac{3}{8}$ feet x 32 $\frac{1}{6}$ feet.
“ “ No. 6 }	{ 128 $\frac{1}{3}$ “ x 32 $\frac{1}{3}$ “
“ “ No. 7 }	{ 128 $\frac{1}{3}$ “ x 31 $\frac{5}{6}$ “
“ “ No. 8 }	{ 128 “ x 32 $\frac{1}{6}$ “
Locks Nos. 9 and 10 and Guard Lock No. 11.....	200 “ x 45 “
Total rise of lockage	45 $\frac{3}{4}$ “
Depth of water on sills.....	6 $\frac{1}{2}$ “
Depth of water on sill of Lock No. 11.....	9 “
Breadth of canal at bottom.....	20 to 30 feet.
Breadth of canal at surface of water.....	25 to 60 “

From the head of the Chute à Bloudeau Canal to the foot of the Grenville Canal there is a navigable section of 1 $\frac{3}{8}$ mile.

This canal is situated about sixty miles below the City of Ottawa, and enables vessels to avoid the Long Sault Rapids.

Closed 20th November, 1875; opened 8th May, 1876.

The four locks at the lower entrance are in a dilapidated condition.

Repairs were confined to works necessary to maintenance.

The tow-paths and structures were thoroughly repaired.

Much new fencing was constructed.

Lock No. 11 was injured by the freshet of the 20th of May and required extensive repairs.

The navigation was interrupted for a period of 20 days on account of this freshet (Appendix 3, page 19.)

NEW WORKS.

Four crossing basins 600 feet in length have been completed. Located on curves and increasing the width at the bottom to 80 feet, they aid in straightening the canal.

Two passing basins below lock No. 10 have also been constructed on Section 2.

The canal has been deepened from Lock No. 10 downwards 6,500 feet, and dry-walls constructed where the banks are completed. (Appendix 3, pages 19 and 34.)

 CULBUTE CANAL.

The work, designed to overcome the Culbute and L'Islet Rapids, consists of two combined locks, each 200 feet in length and 45 feet in width, with 6 feet water on the sills, with a lift of 18 to 20 feet; the dams have a total length of 520 feet.

The locks and mooring piers at each entrance, with the exception of some plank covering, have been completed.

The L'Islet Dam is nearly finished and much progress has been made on the works of the Flat Dam. (Appendix 3, pages 19 and 36.)

 RIDEAU NAVIGATION.

Length of navigation.....	126 $\frac{1}{4}$ miles.
Number of locks in going from Ottawa to Kingston.	{ 33 ascending. 14 descending.
Total lockage.....	446 $\frac{1}{4}$ feet. { 282 $\frac{1}{4}$ rise, and 164 fall } at high water.
Dimensions of locks.....	134 by 33 feet.
Depth of water on sills, 5 feet; navigable depth through canal.....	4 $\frac{1}{2}$ feet.
Breadth of canal at bottom.....	{ 60 feet in earth. 54 feet in rock.
“ at surface of water.....	80 feet in earth.

The Rideau navigation connects the River Ottawa at the City of Ottawa, with the eastern end of Lake Ontario, at Kingston.

The following table gives the distances of the intermediate stations between the Cities of Ottawa and Kingston :—

Number of Station	Name of Station.	Distance from Ottawa.	Locks.		Dams.		Length of Artificial Canal at each station in miles.	
			No.	Lift at Low Water.	No.	Length.		Height.
		Miles.		Rise.		Feet.		
				Ft. In.		230	18	
1	Ottawa	0	8	82 0	3	1,320	33	4·00
2	Hartwell's.....	4½	2	22 0	.....	100	28	
3	Hogsback.....	5½	2	13 6	1	320	60	
4	Black Rapids.....	9½	1	10 0	1	300	12	0·13
5	Long Island.....	14¾	3	27 0	3	850	68	0·13
6	Burritt's.....	40¼	1	10 6	1	240	14	1·50
7	Nicholson	43¾	2	15 2	1	500	9	0·50
8	Clowes	44½	1	10 6	1	481	16	0·05
9	Merrickville	46¾	3	25 0	1	150	6	0·33
10	Maitland's.....	55	1	4 9	1	270	8	0·13
11	Edmonds	59½	1	10 10	1	343	8	0·06
12	Old Slys.....	60½	2	15 6	1	250	20	0·25
13	Smith's Falls.....	61½	4	33 9	2	600	24	0·13
14	First Rapids, or Poonamalie.....	64	1	7 9	1	260	5	1·25
15	Narrows	83¼	1	4 0	1	600	9	0·06
	Total rise at low water.....			292 3				
				Fall.				
16	Isthmus.....	87½	1	4 0	.....	.....	.....	1·25
17	Chaffey's.....	92	1	12 6	.....	.....	.....	0·13
18	Davis	94¼	1	9 0	1	300	15	0·06
19	Jones' Falls.....	97¼	4	60 0	1	300	60	0·25
20	Brewer's Upper Mills	108¼	2	19 0	1	200	20	1·75
21	do Lower Mills.....	110	1	14 2	1	200	12	4·25
22	Kingston Mills	120¼	4	46 8	1	6,042	14	0
22	Kingston.....	126¼	.....	.....	.....	.....	.....	.....
	Total fall at low water .....		.....	165 4				
	Total.....		47	.....	24	15,472	.....	16·46

The navigation closed at Kingston Mills 18th November 1875, and opened 6th May 1876.

At Ottawa, navigation closed the 22nd November 1875, and opened 6th May 1876.

The summit level of the Ottawa is at upper Lake Rideau. But several of the descending reaches are also supplied by the waters which have been made tributary to them. The following description gives the sources of supply.

The route to the east, passes by the River Rideau. Within this extent no reservoirs of supply are found, so that the whole duty of keeping the [navigation to its level, is thrown upon the reserves, which are given in detail below.

They may be divided into three systems, viz:—

The waters supplying the summit level.

The waters supplying the eastern descending level.

The waters supplying the south-west descending level.

SUPPLYING SUMMIT.

Lake Wolfe system, discharging into Summit Level.

SUPPLYING EASTERN DESCENDING LEVEL.

River Tay system, discharging into Lake Rideau.

SUPPLYING SOUTH-WEST DESCENDING LEVEL.

Lake Devil system, discharging into Lake Mud.

Lake Buck system, discharging into Lake Mosquito, and thence into Lakes Mud and Indian.

Lake Rock system, discharging into Lake Openacon.

Lake Loughboro' system, discharging into Lake Openacon.

[Round Tail system, discharging into Lake Cranberry.

THE FOLLOWING ADJACENT WATERS ARE TOTALLY DISTINCT FROM THE
RIDEAU NAVIGATION.

The River Mississippi, which discharges into the River Ottawa, in the Township of Fitzroy.

The River Napanee, Mill Haven Creek and Lake Collins, which discharge into Lake Ontario.

At the following stations the fences have been repaired, the swing bridges restored, and the works generally maintained :

Kingston Mills.

Newboro'.

Narrows.

Smith's Falls.

Mutchmor's.

Merrickville.

At the following stations gates have been maintained and general repairs performed :

Kingston Mills.
 Brewer's Upper Mills.
 Poonamalie.
 Smith's Falls—Detached.
 Old Slys.
 Edmond's.
 Clowes.
 Nicholson.
 Burritt's Rapids.
 Becket.
 Hartwell's.

At the following places the dams have been strengthened :

Brewer's Lower Mills.
 White Fish Dam.
 Eagle Lake "
 Clowes "
 Hogsback "

The following locks have been repaired :

Jones Falls.
 Davis "
 Chaffey's "

At the undermentioned stations the sluices and by washes have been repaired

Jones Falls.
 Davis "
 Poonamalie Falls.
 Old Slys.
 Long Island.
 Black Rapids.

OTTAWA.

The sewer to take the drainage hitherto turned into the Canal Basin has been completed. (Appendix 8, page 46.)

TABLE showing the dimensions of the locks on the present canals in the Montreal, Ottawa and Kingston line of navigation ; also the size of the largest vessel which may pass through them.

Name of Canal.	Dimensions of Locks.			Dimensions of Vessel.			
	Length.	Breadth.	Depth of Water.	Length.	Breadth.	Draught of water when loaded.	Tonnage.
Carillon and Grenville...	128	31½	5½	110	28	5	100
Rideau.....	134	32	5	110	31½	4½	250

RICHELIEU AND LAKE CHAMPLAIN.

This navigation, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, forty-six miles below Montreal, and one hundred and fourteen miles above Quebec, continues along the River Richelieu to the Basin of Chambly, where it takes the Chambly Canal to St. John's and again follows the River Richelieu to Lake Champlain, of which the Richelieu is an outlet. The distance of eighty-one miles is in the territory of the Dominion.

At Whitehall, the southern end of Lake Champlain, the Champlain Canal is entered, and a connection obtained with the River Hudson, by which the City of New York is directly reached. The distance of three hundred and thirty miles is in the United-States' Territory.

The artificial works in the Dominion are the St. Ours' Lock and Dam and the Chambly Canal.

The following table shows the distances, total and intermediate, into which the navigation from Sorel to New York is divided :

Sections of Navigation.	Intermediate distances in Miles.	Total Distances
Sorel to St. Ours' Lock.....		14
St. Ours' Lock to Chambly Canal.....	32	46
Chambly Canal.....	12	58
Chambly Canal to Province Line.....	23	81
Boundary Line to Champlain Canal.....	111	192
Champlain Canal to Junction with Erie Canal.....	66	256
Erie Canal from Junction to Albany.....	7	265
Albany to New York.....	146	411

ST. OURS' LOCK AND DAM.

Length of canal.....	$\frac{1}{3}$ mile.
Number of locks.....	1
Dimensions of lock.....	200 feet by 45 feet.
Total rise of lockage.....	5 feet.
Depth of water on sills.....	7 feet at low water.
Length of dam in Eastern Channel.....	300 feet.
“ “ Western Channel.....	600 feet.

At St. Ours', fourteen miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours' Lock of cut stone and an earthwork dam are in the eastern channel; in the western channel a large dam has been built of crib-work, filled with stone.

These works give a navigable depth of 7 feet between St. Ours' Lock and Chambly Basin, a distance of thirty-two miles.

Closed 22nd November, 1875; opened 19th April, 1876.

Navigation was uninterrupted.

The works have been generally repaired and maintained the landing stage replaced; some fencing renewed and the structures repaired and repainted. (Appendix 3, page 16.)

CHAMBLY CANAL.

Length of canal.....	12 miles.
Number of locks.....	9
Dimensions of locks:—	
Guard Lock, No. 1, at St. John.....	122 feet by $23\frac{1}{2}$ feet.
Lift “ No. 2.....	124 “ $23\frac{7}{12}$ “
“ “ Nos. 3, 4, 5, 6.....	118 “ 23 to $23\frac{7}{12}$ feet.
“ “ Nos. 7, 8, 9, combined.....	125 “ $23\frac{3}{4}$ feet
Total rise of lockage.....	74 “
Depth of water on sills.....	7 “
Breadth of canal at bottom.....	36 “
“ “ surface of water.....	60 “

Succeeding the thirty-two miles of free navigation between St. Ours' Lock and Chambly Basin—a natural reservoir formed by the expansion of the River Richelieu—is the Chambly Canal, built to avoid the rapids between St. John's and Chambly, a distance of 12 miles.

This canal was closed 22nd November 1875 and opened 1st May 1876.

Navigation was uninterrupted.

The lock house destroyed at the great fire in June at St. John's has been rebuilt.

The necessary repairs for maintenance throughout have been made.
(Appendix 3, page 15.)

RIVER RICHELIEU WORKS.

The channel under the Swing Bridge of the Railway and its approaches above and below has been deepened to 7 feet at low water. (Appendix 3, page 15.)

TABLE showing the sizes of the smallest locks on the canals of the Richelieu and Lake Champlain line of navigation to New York, also the dimensions of the largest vessel which may pass through them.

Name of canal.	Dimensions of Lock in feet.			Dimensions of Vessel in feet.			
	Length.	Breadth.	Depth of water on sills.	Length.	Breadth.	Draught of water when loaded.	Tonnage.
U. S.—Erie Canal.....	110	18	7	102	17½	6	210
U. S.—Champlain Canal	97	14	4	89	13½	3½	70
Chambly Canal.....	118	23½	7	114	23	6½	230

RIVER ST. FRANCIS.

A channel 50 feet wide has been dredged between Pierreville Mills and Lake St. Peter. (Appendix 3, page 16.)

ST. PETER'S CANAL.

Length of canal, about 2,400 feet.

Breadth of canal at bottom, 26 feet.

One tidal lock, 4 pair of gates.

Dimensions, 26 by 122 feet.

Depth of water on sills, 13 feet at lowest water.

Extreme rise and fall of tide in St. Peter's Bay, about 9 feet.

This work connects St. Peter's Bay, on the southern coast of Cape Breton, with the Bras D'Or Lakes. It crosses an isthmus half a mile long, and gives access to and from the Atlantic Ocean.

Closed, 4th December 1875; opened 3rd May 1876.

The contract having been entered into for the enlargement of this canal it was closed during the month of June to admit of the work proceeding. (Appendix 9, page 49.)

BAY VERTE CANAL.

The Commission composed of the following gentlemen :

Hon. John Young, Chairman.

Hon. W. P. Howland, C. B.

J. W. Lawrence, Esq.

Peter Jack, Esq.

F. Braun, Esq., Secretary.

appointed "to investigate the nature and extent of the commercial advantages to be derived from the construction of the Bay Verte Canal to connect the waters of the Bay of Fundy and the Gulf of the St. Lawrence" have reported as follows:—

"Taking the whole circumstances relating to the proposed Canal to connect the Bay of Fundy at Au Lac with the Northumberland Straits at Baie Verte into consideration, and after having carefully weighed the evidence obtained from various sources as to:—

"1st. The distance from the St. Lawrence *via* the proposed canal, to the great sea ports of South America and the West Indies and the United States coasts, as compared with the route by the Straits of Canso or round Cape North;

"2nd. The extent of the existing trade with these ports and its probable prospective increase;

"3rd. Whether it is probable that any or what portion of the coal trade from the Northern coasts of Nova Scotia and Cape Breton or the Southern coasts of Newfoundland will be likely to seek the outlet by the proposed Canal;

"4th. The size of the vessels which might fairly be expected to trade through the proposed Canal and whether said vessels or steam vessels will be on the same comparative footing as on the existing routes by the mouth of the Gulf;

"5th. The nature and extent of the local trade affecting only the coasts of New Brunswick and Prince Edward Island;

"6th. The extent and nature of the difficulties which might be encountered in getting into and out of the Canal on account of the extreme high tides in the Bay of Fundy;

"And considering the railway facilities for transport which now exist,—

"The Commissioners have no hesitation in expressing their opinion that it is not in the interest of the Dominion that the proposed Canal should be constructed."

 WORKS ON NAVIGABLE RIVERS.

DOMINION RIVERS.

The following rivers are under the control of the Dominion Government :—

The St. Lawrence (to the head of Lake Superior.)

“ Ottawa.

“ St. Croix, New Brunswick.

“ Restigouche, do

“ St. John, do

“ Tidnish, Nova Scotia.

“ Missiguash, boundary line between New Brunswick and Nova Scotia.

“ Fraser, British Columbia.

“ Red, Manitoba.

 RIVER ST. LAWRENCE.

DEEPENING CHANNEL BETWEEN QUEBEC AND MONTREAL.

The work is reported as proceeding satisfactorily. The design is to increase the depth of 20 feet attained in 1865, to 22 feet at lowest water.

Operations commenced July 1874 at the Grondine Shoal, Cape Charles. In June 1875, the additional plant ordered was placed at work. During the season of 1875 the force consisted of seven dredges. In September another dredge was added.

Work has been performed at—

1. The Grondine Shoal, Cape Charles.
2. The Channel of Lake St. Peter.
3. Contreccœur.
4. Cape St. Michael.
5. Varennes, at the head of Isle Delorier.

Operations have been retarded this season by the extreme high water. All the dredges, however, were set to work between 13th May and 12th June, and were in active operation at the close of the fiscal year.

The Grondine Shoal at Point Charles is of shaly rock with points having from 16 to 18 feet at low water, overlaid with boulders, many of great weight, frequently closely packed. The rock has hitherto been lifted by the dredge and stone lifters; but little blasting has been done.

The deepening of the Lake St. Peter Channel has been commenced at the lower end of the lake.

An entirely new channel is being formed at Contrecoeur.

At Cape St. Michael the shallow points within the lines of the channel are being removed.

At Varennes a series of shoals are in course of being deepened.

The dredging fleet consists of

- 6 New dredges
- 1 Clyde built dredge
- 1 Side wheel tug, the "John Young"
- 1 Side wheel tug "Richelieu"
- 6 Screw tugs
- 1 Stone lifter
- 5 Coal barges
- 17 Scows.

The value is reported at \$595,500.

The work is carried on under the direction of the Harbor Commissioners of Montreal. Reports are periodically made to the Department, and Departmental Engineers have examined the work as it is designed and have suggested changes which they considered expedient.

LAKE ST LOUIS

The shoals were removed from the mouth of the River Chateaugay.

RIVER ST. JOHN (NEW BRUNSWICK.)

The improvements were confined principally to the Meductic Falls considered the most difficult to navigate between Fredericton and Woodstock.

164 snags were removed from the steamboat channel between St. John and Fredericton. (Appendix 15 page 70.)

RIVER NIAGARA.

A survey has been ordered of these waters to determine to what extent the inlet crib of the Buffalo Water Works placed midway in the river interferes with navigation. (Appendix 14, page 61.)

RIVER DETROIT.

Much of the rock obstruction known as the Lime Kiln Shoal has been removed.

An ascending line on the lights on the main land and a descending line on the lights on Bois Blanc Island were gained with a depth of 14.5 feet at lowest water.

Votes of thanks for this work have been received from the Boards of Trade of Buffalo and Detroit. (Appendix 14, page 62.)

RIVER DETROIT TUNNEL.

The River Detroit has been surveyed near Amherstburg to determine the practicability of a Railway Tunnel. This work has been conceived in the general interests of all Railways having connections in Michigan.

Further it has specially in view the avoidance of obstructions to navigation from railway bridges or from the erection of prolonged piers.

The navigation of this river has already been injuriously affected by the projecting dock works of railways which have accelerated the current at spots where it naturally runs at periods with some force.

A railway tunnel would remove all ground for the erection of works of this character.

The engineer in charge has reported at length on the feasibility of a tunnel and has furnished full designs and estimates for the work. The information has been communicated to the railways interested. (Appendix 19, page 88.)

LAKE ST. CLAIR.

RIVER SYDENHAM, EAST BRANCH.

The dredging was completed between Wallaceburg and Dresden to obtain a channel 50 feet wide and 10 feet deep. (Appendix 14, page 63.)

NORTH BRANCH.

This branch extends from Wallaceburg to Wilkesport, a distance of 18 miles by river and 12 by road.

Instructions have been given to survey these waters, commencing at Cranston's Bar. (Appendix 14, page 63.)

HARBORS AND PIERS.

RIVER ST. LAWRENCE AND WESTERN LAKES.

PROVINCE OF QUEBEC.

RIVER ST. LAWRENCE.
BAY ST. PAUL.

On the north shore of the St. Lawrence, 54 miles below Quebec.
The extension of the mooring block for 159 feet is completed.

LES EBOULEMENTS.

On the north shore of the St. Lawrence, 63 miles below Quebec.
The new wing 50 feet in length, 42 feet wide is completed.

MALBAIE.

On the north shore of the St. Lawrence, 81 miles below Quebec.
The extension of the pier has been finished.

BAGOTVILLE.

On the River Saguenay, 66 miles from its mouth.
The pier has been lengthened by an arm to the south 53 feet long, 30 feet wide

QUARANTINE STATION, GROSSE ISLE.

The Island is 30 miles below Quebec.
The south western pier has been restored.
Arrangements have been made for additional stone filling of the superstructure.
(Appendix 14, page 56.)

RIVER BLANCHE.

This river is situated between the Rivers Tartigoux and Matane, about 26 miles east of the River Métis.

A mooring crib is in course of construction. (Appendix 14, page 58.)

RIVER DU LOUP (EN BAS.)

On the south shore of the St. Lawrence, 108 miles below Quebec.
The restoration of the roadway and planking of this pier will be immediately commenced. (Appendix 14, page 58.)

RIVER OUELLE.

On the south shore of the St. Lawrence, 75 miles below Quebec.

The work of restoring this wharf will be immediately commenced. (Appendix 14, page 58.)

L'ISLET.

On the south shore of the St. Lawrence, 47 miles below Quebec.

It is intended immediately to commence work towards the restoration of this pier. (Appendix 14, page 59.)

BERTHIER (EN BAS.)

On the south shore of the St. Lawrence, 24 miles below Quebec.

Work towards the restoration of this pier will be immediately commenced. (Appendix 14, page 59.)

LAKE ONTARIO

KINGSTON.

The operations for the removal of the Carruther's shoal were continued till the close of the season of 1875. (Appendix 14, page 59.)

NAPANEE.

The harbor of Napanee is 26 miles from Kingston, and 22 miles from Belleville.

It is the commercial centre of the counties of Lennox and Addington.

It is approached from the Bay of Quinté by the River Napanee.

A channel 50 feet wide with a depth of 8 feet at low water has been obtained to the Diamond Mill. (Appendix 14, page 59.)

TRENTON.

Trenton is situated at the head of the Bay of Quinté, 60 miles from Kingston and 12 miles above Belleville. It is an important shipping place.

This harbor was carefully surveyed to determine the obstructions to navigation near the wharves, and at Nigger Island at which place a good channel was found. (Appendix 14, page 59.)

COBOURG

Is situated on Lake Ontario, 72 miles east of Toronto. The improvement is the construction of a pier 1470 feet long, 30 feet wide, carried out on the line of Hibernia street; two thirds of the cost to be borne by the Department, and one third by the Harbor Commissioners of Cobourg.

The work has been continued to the close of the fiscal year.

It is anticipated that it will be completed this fall. (Appendix 14, page 60.)

PORT HOPE.

Port Hope is situated 7 miles to the west of Cobourg on Lake Ontario.

The improvements consist in the prolongation of the west pier for a length of 150 feet on a width of 30 feet and of the east pier 120 feet on a width of 40 feet.

The prolongation of the two piers was finished in September last. (Appendix 14, page 60.)

PORT DARLINGTON

Is about 40 miles east of Toronto on Lake Ontario.

This harbor has been dredged to a depth of 10 feet. (Appendix 14, page 60.)

OSHAWA.

Is 4 miles east of Whitby and about 33 miles from Toronto.

The wharf has been lengthened and the channel alongside of it deepened. (Appendix 14, page 61.)

TORONTO.

The plant has been removed from Kingston to commence the work of deepening, widening and otherwise improving the Western Entrance. (Appendix 14, page 61.)

OAKVILLE

Is 19 miles west of Toronto on Lake Ontario.

Instructions have been given for a thorough survey of this harbor. (Appendix 14, page 61.)

LAKE ERIE.

PORT BURWELL

Is situated between Rondeau and Long Point, being distant from the former 62 and from the latter 22 miles.

The sum of \$10,000 has been appropriated for the improvement of the west pier and for dredging the harbor to a depth of 10 feet.

The crib work on the west side has been repaired.

Arrangements have been made for deepening the harbor to a short distance above Brock street. (Appendix 14, page 61.)

PORT STANLEY

Is about 85 miles from the entrance to the Welland Canal, 112 miles from Erie, and 85 miles from Cleveland, State of Ohio.

The work of lengthening the pier which was impeded by the storms of last fall has been satisfactorily completed. (Appendix 14, page 62.)

EAGLE.

Eagle is on the north shore of Lake Erie, 24 miles above Port Stanley.

This harbor was examined with a view to determine what improvement was practicable. (Appendix 14, page 62.)

MORPETH.

Morpeth on the north shore of Lake Erie is west from Port Stanley 44 miles.

An examination was made of this harbor with a view to determine what improvement was practicable. (Appendix 14, page 62.)

LAKE HURON.

BAYFIELD

Is situated on Lake Huron, 12 miles south of Goderich, in the Township of Stanley.

This work has been carried on satisfactorily this year. It is anticipated it will be completed by the fall of the year. (Appendix 14, page 63.)

GODERICH.

The river pier has been completed and the course of the River Maitland turned so as not to enter the harbor.

The north docking of the harbor proper inside of the river pier is completed to the extent of two thirds of the cribwork, and the dredging of the inner basin has been proceeded with.

The checkwater cribwork on inner end of the south pier to protect the harbor from the south west wind is in course of construction.

The whole work to the extent of the appropriation will be closed this fall.

KINCARDINE

Is situated at the mouth of the River Penetangore, 31 miles north of Goderich on Lake Huron.

New cribs at the entrance have been sunk and the inner basin has been dredged out.

The contract has been awarded for piling the east and west sides of the Basin, the Corporation undertaking to perform the work on the south side. (Appendix 14, page 64.)

 CHANTRY ISLAND.

This work fully described in last year's report has been carried on satisfactorily and will be completed at the close of the season.

 GEORGIAN BAY.

 PARRY SOUND.

Instructions have been given to survey these waters. (Appendix 14, page 64.)

 RIVER ST. MARY.

 NEEBISH RAPIDS.

These rapids are met in the River St. Mary about half way between Bruce Mines and Sault St. Mary.

The plant has been moved up, and the work of removing obstructions in the rapids as far as practicable will be immediately commenced. (Appendix 14, page 64.)

 LAKE SUPERIOR.

 RIVER KAMINISTIQUIA—THUNDER BAY.

The river and its entrance have been surveyed.

It is designed to form a channel 50 feet wide across the shoal with a depth of 13 feet as far as the terminus of the Pacific Railway, that vessels freighted with iron for the railway can discharge at the wharf. (Appendix 14, page 64.)

 MARITIME PROVINCES.

 NEW BRUNSWICK.

 RICHIBUCTO.

On the Straits of Northumberland, 40 miles north of Shediac.

The breakwater on the north beach was completed in September last. (Appendix 15, page 66.)

POINT DU CHÊNE.

One of the termini on the Gulf of St. Lawrence of the Intercolonial Railway, at Shediac Harbor.

The breakwater which was finished in September last has proved satisfactory. (Appendix 15, page 66.)

ST. JOHN BREAKWATER.

One third of this work has been completed.

It is anticipated that it will effectually protect the harbor during the south-westerly gales. (Appendix 15, page 66.)

SHIPPAGAN

In the County of Gloucester, at the entrance of Bay of Chaleurs, is 70 miles from Chatham.

About one third of the breakwater has been completed. (Appendix 15, page 66.)

GRANDE ANSE.

In Gloucester County, on north shore of Bay of Chaleurs, about midway between Shippagan Sound and Bathurst Harbor.

The construction of the breakwater is in progress. (Appendix 15, page 68.)

CAMPO BELLO

Is situated on the Island of that name in the Bay of Fundy.

A breakwater was constructed at Wilson's beach, the Local Government paying half the cost. (Appendix 15, page 68.)

DREDGING.

The entrance of the River Jemseg was dredged out.

Beard's Bar, River Salmon, at the head of Grand Lake, has been dredged.

The public landings at Fredericton were deepened.

The bar at Richibucto Harbor was dredged.

The "Seal Bar," Bathurst Harbor was dredged.

The "Horse Shoe Shoal" in the River Miramichi was dredged. (Appendix 15, pages 70, 71.)

NOVA SCOTIA.

JORDAN BAY.

On the south west coast of Nova Scotia, 36 miles south west from Liverpool Harbor and 25 miles north west from Cape Sable.

The breakwater has been completed. The result is satisfactory. (Appendix 15, page 67.)

OAK POINT

Is now known as Kingsport in Minas Basin, King's County, 3 miles east of the town of Canning.

The extension of the breakwater was completed in November last. (Appendix 15, page 67.)

INGONISH.

On the Gulf of St. Lawrence, about 20 miles south of North Cape, Cape Breton. The pierwork injured last fall has been restored.

The widening and deepening of the channel is not yet completed, but the full depth has been obtained throughout the whole length sufficient to admit vessels to take advantage of the shelter. (Appendix 15, page 67.)

MAROU.

Inverness County about 10 miles from Port Hood and 40 from North Entrance to Gut of Canso.

The works unfinished were placed under contract and completed in April last. (Appendix 15, page 67.)

COW BAY.

About 30 miles south east of Sydney, Cape Breton.

The repairs to the damage of the gale of August 1873, are nearly completed. (Appendix 15, page 67.)

L'ARDOISE.

On east side of St. Peter's Bay, about 9 miles south east from the entrance to St. Peter's Canal.

A breakwater 400 feet in length has been commenced. (Appendix 15, page 67.)

ST. PETER'S CANAL.

This work connects St. Peter's Bay on the southern coast of Cape Breton with the Bras d'Or Lake.

The Contractor for an enlarged lock has commenced operations. (Appendix 15, page 67.)

METEGHAN COVE.

On eastern side and at the mouth of St. Mary's Bay, about 25 miles north of Yarmouth.

The breakwater has been extended. (Appendix 15, page 68.)

BROOKLYN.

100 miles south of Halifax on the Atlantic Ocean.

The breakwater has been repaired and protected. (Appendix 15, page 68.)

TROUT COVE.

In the County of Digby, midway between Digby Gut and Petit Passage.
The breakwater has been extended. (Appendix 15, page 69.)

MARGAREE.

Inverness County, Cape Breton.
The pier has been repaired and extended. (Appendix 15, page 69.)

HARBORVILLE.

On the south shore of the Bay of Fundy, about 60 miles east of Digby Gut.
The breakwater has been repaired and an addition made to it. (Appendix 15, page 69.)

BROAD COVE.

About 15 miles east of the entrance to Liverpool Harbor.
The breakwater has been extended 400 feet. (Appendix 15, page 69.)

MARGARETVILLE.

Annapolis County, 45 miles east of Digby Gut,
The breakwater has been repaired and strengthened, and an addition made to it.
(Appendix 15, page 69.)

OYSTER POND.

On the northern shore of Chedabucto Bay, and westward of the entrance to the Gut of Canso.
The channel has been deepened and protected by cribwork. (Appendix 15, page 69.)

CRANBERRY HEAD

Is about 6 miles north of Yarmouth.
The breakwater has been extended 150 feet. (Appendix 15, page 69.)

CHURCH POINT.

On the east coast of St. Mary's Bay, Digby County.
The breakwater has been repaired and strengthened, the local authorities paying half the cost. (Appendix 15, page 69.)

SAULNIERVILLE.

Is 5 miles south of Church Point.
The breakwater has been repaired and 100 feet added to it. (Appendix 15 page 70)

TUSKET.

Is about 20 miles south of Yarmouth.
Several rocks have been removed from the channel. (Appendix 15, page 70.)

DREDGING.

The channel at Lunenburg was dredged.

The harbor at Yarmouth was deepened.

The harbor at Cheticamp, Inverness County, Cape Breton, was dredged.

The railway wharf at Pictou and the channel in the East River have been dredged.
(Appendix 15, page 71.)

PRINCE EDWARD ISLAND.

NEW LONDON.

On the north eastern coast.

The works were completed in October last.

12 and 13 feet are found at low water on the bar where previously there was only 8 feet. (Appendix 15, page 68.)

TIGNISH

Near the northern extremity of the Island.

About two thirds of the work contracted for has been executed. (Appendix 15, page 68.)

COLVILLE BAY.

About one third of the extension of the breakwater has been completed. (Appendix 15, page 68.)

DREDGING.

The entrance to the Harbor of Crapaud was dredged.

The railway wharf at Charlottetown was deepened. (Appendix 15, page 71.)

IMPROVEMENT OF RIVERS.

SOUTH WEST MIRAMICHI.

The channel has been improved to admit steamers at low water between Chatham, Newcastle and Fredericton. (Appendix 15, page 70.)

SURVEYS.

Several harbors in the Maritime Provinces have been surveyed. (Appendix 15, page 72.)

SLIDES AND BOOMS.

The Government slides were constructed to effect the passage of lumber, where impediments to navigation exist, and where no canal connects the reaches of natural navigation. The booms form artificially closed bays at the entrance and discharge of the slide, to retain the timber.

The principal lumbering districts of the Provinces of Ontario and Quebec are situated on the Saguenay, St. Maurice, Ottawa, Trent, Georgian Bay, and on the tributaries of those waters.

RIVER SAGUENAY.

The works on this river consist of one slide 5,840 feet in length, with a boom of 1,314 feet, and dams, piers and bulkhead. They avoid the rapids which occur where Lake St. John passes into the River Saguenay.

The works cover a distance of about six miles, and are built on *La Petite Décharge*, the less of the two affluents of Lake St. John. Commenced in 1856, they were completed in 1860.

The freshets caused much damage.

The dam at the mouth of Lake St. John, a portion of the boom, 1800 feet of slide and the sluice were carried away. (Appendix 13, page 57.)

RIVER ST. MAURICE.

The slides and booms on this river and the Vermillion, one of its tributaries, occur in the order here given, and at the following distances from the town of Three Rivers :—

STATIONS.	FROM THREE RIVERS.
<i>River St. Maurice</i> :—	
Booms at mouth.....	0 miles.
Grés Falls.....	16 “
Shawenigan.....	20 “
Grand'Mère.....	29 “
Little Piles.....	31½ “
La Tuque.....	100 “
Plamondon Eddy.....	106 “
<i>River Vermillion</i> :—	
Month of river.....	116 “
Iroquois Falls.....	121 “

The principal tributaries of the River St. Maurice are the Shawenigan, Mekinak, Matawan, Petit Bostonais, Grand Bostonais, Croche, Vermillion, Tranche, Grand Pierriche and Manouan.

BOOMS AT MOUTH.

Two new cribs were constructed and general repairs made.

SHAWENIGAN.

Two new cribs have been constructed and general repairs made.

GRAND'MÈRE.

Some additional boomage has been made.

LA TUQUE.

The booms have been repaired.

IROQUOIS FALLS.

A new dam and wharf have been constructed and general repairs executed. Owing to the height of water last spring, the boomage at La Tuque was carried away. (Appendix 12, page 55.)

THE OTTAWA DISTRICT.

The Government works for the descent of timber in this district are as follows

On the Ottawa, main river.....	11 stations.
“ Gatineau.....	1 “
“ Madawaska.....	15 “
“ Coulonge.....	2 “
“ Black.....	1 “
“ Petewawa.....	31 “
“ River du Moine.....	12 “

The following is a table of distances from St. Anne's Lock at the outlet of the River Ottawa to the mouth of its principal tributaries; also to the stations where slides or other works have been constructed :

PLACES.	DISTANCE FROM ST. ANNE
Carillon.....	27 miles.
Grenville.....	40 “
River Nation.....	63 “
River Lièvre.....	79 “
“ Gatineau.....	96 “
Chaudière Falls.....	98 “
Little Chaudière.....	100 “
Remous.....	102 “
Lac Deschênes.....	105 “
River Quio.....	129 “

PLACES.	DISTANCE FROM ST. ANNE.
Chats Station.....	131 miles.
Head of Chats.....	134 "
River Mississippi.....	134 "
" Madawaska.....	136 "
" Bonnechère.....	148 "
Les Chenaux.....	152 "
Portage du Fort.....	156 "
Mountain Station.....	161 "
Calumet.....	163 "
River Coulonge.....	184 "
" Black.....	193 "
" Snake.....	204 "
" Petewawa.....	218 "
Les Joachims.....	236 "
River du Moine.....	244 "
Rocher Capitaine.....	253 "
Deux Rivières.....	266 "
River Matawan.....	286 "
" Antoine.....	293 "
" Beauchêne.....	315 "
" Porc-épic.....	326 "
" Grand Opemiconne.....	333 "
" Keepawa.....	349 "
" Montreal.....	355 "
Fort Temiscamingue.....	367 "
River Ottetail.....	384 "
" Blanche.....	386 "
" des Quinze.....	389 "

RIVER OTTAWA.

LIST OF SLIDE AND BOOM STATIONS ON THE RIVER OTTAWA.

The distances given are measured on the latest maps, following the channel by which lumber is floated down the river.

Names of Stations.	Distance from mouth of Ottawa at St. Anne.
1. Carillon.....	27 miles.
2. Chaudière... { north side, Hull, } { south side, Ottawa, }	98 "
3. Chaudière (Little).....	100 "
4. Remous	102 "
5. Deschênes Rapids.....	104 $\frac{3}{4}$ "
6. Chats Station.....	131 "
7. Head of Chats.....	134 "
8. Chenaux.....	152 "
9. Portage du Fort.....	156 "
10. Mountain.....	161 "
11. Calumet.....	163 "
12. Joachim Rapids.....	249 "

The works of these twelve stations consist of:—

2,000	lineal feet of canal,
3,835	" slides,
29,855	" booms,
8,656	" dams,
346	" bulkheads,
1,981	" bridges,
52	piers,
3	slide-keeper's houses,
3	store-houses.

No difficulty was experienced in passing timber at the various stations.

In the fall of 1875, the timber arrived at the usual dates.

Repairs were made at

The Joachim Station	
Calumet	"
Mountain	"
Chats	"
Hull	"
Chaudière	"
Carillon	"

The difference between high and low water as shewn by the spring freshets of 1876 was the greatest known.

Many of the structures were injured.

Some rock has been taken from the Chenaux steamboat channel. (Appendix 11 page 53.)

RIVER GATINEAU.

The River Gatineau flows from the north, and discharges into the Ottawa at a point about 96 miles above the junction of that river with the Saint Lawrence and 2 miles below the City of Ottawa. The length of the Gatineau is 400 miles, and it drains an area of about 9,000 square miles.

The Government works are centred at one station, about a mile from its confluence with the Ottawa.

They consist of:—

- 3,071 lineal feet of canal,
- 4,138 “ “ booms,
- 52 “ “ bridge,
- 10 piers,
- 1 slide-keeper's house.

The works have been maintained in the usual manner. (Appendix 11, page 53.)

RIVER MADAWASKA.

The length of the River Madawaska is 240 miles. It drains an area to the south of about 4,100 square miles, and discharges into the River Ottawa 136 miles above St. Anne.

Slide and boom stations on the Madawaska, numbered from the mouth of the river upwards, are as follows:—

- | | |
|---------------------|----------------------|
| 1. Mouth of River. | 9. High Falls. |
| 2. Arnprior. | 10. Ragged Chute. |
| 3. Flat Rapids. | 11. Boniface Rapids. |
| 4. Balmer's Island. | 12. Duck's Island |
| 5. Burnstown. | 13. Bailey's Chute. |
| 6. Long Rapids. | 14. Chain Rapids. |
| 7. Springtown. | 15. Opeongo Creek. |
| 8. Calabogie Lake. | |

The works at these stations consist of:—

- 1,750 lineal feet of slides,
- 18,179 “ booms,
- 4,080 “ dams,
- 182 “ bridges,
- 43 piers,
- 1 slide-keeper's house,
- 1 work shop.

The works have been repaired. (Appendix 11, page 53.)

 RIVER COULONGE.

The river drains an area of about 1,800 square miles, and its length is 160 miles. It discharges into the River Ottawa, 184 miles above St. Anne, on the north shore

The following is a list of the Government works on this river :

Boom at mouth.....	300	feet long,	and 1	support pier.
Booms at Romain's Rafting-ground.....	400	"	3	" piers.
Booms at head of High Falls slide.....	1,848	"	6	"

The works have been repaired. (Appendix 11, page 53.)

 BLACK RIVER.

This river empties into the Ottawa at a point 193 miles above St. Anne. Its length is 128 miles, and the area to the north drained by it is about 1,120 square miles.

The works consist of :—

1,139	lineal feet of single-stick booms,
873	" slide,
346	lineal feet of glance pier,
135	" flat dam.

The works have been maintained. (Appendix 11, page 53.)

 RIVER PETEWAWA.

The length of the Petewawa is about 138 miles, and the area of the territory drained by it covers about 2,200 square miles.

It flows from the south, and discharges into the Ottawa 218 miles above St. Anne. Seven miles from its mouth, the Petewawa separates into two branches. On these 7 miles there are five stations, on the north branch eighteen stations and on the south branch eight stations.

List of the slides and booms on this river, in the order in which they occur from the mouth upwards :—

- | | |
|------------------------|-----------------|
| 1. Mouth of the River. | 4. Third Chute. |
| 2. First Chute. | 5. Bois'dur. |
| 3. Second Chute. | |

NORTH BRANCH.

- | | |
|---|---|
| 1. Half-mile Rapid. | 11. Devil's Chute. |
| 2. Crooked Chute. | 12. Elbow of Rapids. |
| 3. Between High Falls and Lake Traverse
(a slide and a series of dams and booms) | 13. Foot of Long Sault. |
| 4. Thompson's Rapids. | 14. Middle of Long Sault. |
| 5. Sawyer's Rapids. | 15. Head of Long Sault. |
| 6. Meno Rapids. | 16. Between Long Sault and
Cedar Lake (south shore.) |
| 7. Below Trout Lake. | 17. Between Long Sault and
Cedar Lake (north shore.) |
| 8. Strong Eddy. | 18. Cedar Lake. |
| 9. Cedar Islands. | |
| 10. Foot of Devil's Chute. | |

SOUTH BRANCH.

- | | |
|------------------|-------------------|
| 1. First slide. | 5. Fifth slide. |
| 2. Second slide. | 6. Sixth slide. |
| 3. Third slide. | 7. Seventh slide. |
| 4. Fourth slide. | 8. Eighth slide. |

The works at these 31 stations are as follows :--

ON THE MAIN RIVER.

2,963 lineal feet of slides,
8,469 " booms,
2,077 " dams,
7 piers.

ON THE NORTH BRANCH.

480 lineal feet of slides.
2,671 " booms,
1,131 " dams,
23 piers.

ON THE SOUTH BRANCH.

2,134 lineal feet of slides.
388 " dams.

The works have been maintained. (Appendix 11, page 53.)

RIVER DU MOINE.

The length of this river is 120 miles, and it drains to the north an area of about 1,600 square miles. It flows into the river Ottawa at a point about 256 miles above St. Anne.

The present works on this river consist of a pier and retaining boom at its mouth, a single-stick slide, and a series of flat dams from the mouth upward. They may be detailed as follows, viz:—

300 lineal feet of slide,
 800 " booms,
 1,324 " dams,
 6 piers.

The works have been repaired. (Appendix 11, page 53.)

SLIDES AND BOOMS.

THEIR COST AND REVENUE.

It was stated in the last report that the slides and booms in the Provinces of Quebec and Ontario annually exact an expenditure for cost of maintenance and staff beyond their receipts, and it was suggested whether it might not be desirable to transfer to the Provincial Governments the slides and booms of the rivers within their boundaries.

For the three previous years the revenue and expenditure for maintenance have been—

PROVINCE OF QUEBEC.

	Revenue.	Repairs and maintenance.
River Saguenay, 1873.....	\$ 4,522 62	\$ 1,225 55
do 1874.....	1,677 59	4,139 47
do 1875.....	2,038 09	2,305 61
	<hr/>	<hr/>
	\$ 8,238 30	\$ 7,670 63
	<hr/>	<hr/>
	Revenue.	Repairs and maintenance.
St. Maurice, 1873.....	\$12,187 91	\$23,449 03
do 1874.....	11,108 12	27,399 30
do 1875.....	15,363 80	26,888 47
	<hr/>	<hr/>
	\$38,659 83	\$77,736 80

During the last fiscal year, the revenue and expenditure for maintenance have been as follows:—

	Revenue.	Maintenance.
River Saguenay.....	\$ 765 19	\$ 4,741 25
St. Maurice	13,900 16	23,009 38

PROVINCE OF ONTARIO

No revenue is received from the Trent navigation, but the expenditure of maintenance for the last four years has been—

	Maintenance.
1873.....	\$6,163 41
1874.....	7,868 40
1875.....	4,986 78
1876.....	4,603 57
	<hr/>
	\$28,284 51

The total revenue and expenditure on the above works from 1873-1876 therefore have been —

	Revenue.	Repairs and maintenance.
River Saguenay.....	\$ 9,003 49	\$ 12,411 88
“ St. Maurice.....	52,559 99	100,746 18
“ Trent.....	Nil	31,492 04

The following amounts have been expended in construction, totally independent of repairs, staff and maintenance, 1873-1876:—

Saguenay.....	Nil.
St. Maurice.	\$108,030 68
Trent.....	4,662 35

The River Ottawa forms the boundary between Ontario and Quebec, and from its geographical position is included in the streams under the control of the Dominion Government. At present the cost of maintenance is exceeded by revenue

The revenue and expenditure on this river and its affluents have been as follows:—

	Revenue.	Repairs and maintenance.
1873.....	\$110,462 14	\$ 35,698 90
1874.....	117,989 39	54,900 34
1875.....	104,225 16	82,137 63
1876.....	84,399 38	36,388 92
	<hr/>	<hr/>
	\$417,076 07	\$209,125 79

The amount expended on construction, 1873-6, independently of the above amount, is \$99,526.02.

RIVER TRENT AND NEWCASTLE DISTRICT.

The River Trent discharges into the Bay of Quinté, Lake Ontario, at Trenton, sixty-seven miles above Kingston. Proceeding inland to Lake Scugog, a chain of rivers and lakes connecting with each other is met in the following order:—River Trent, Lake Rice, River Otonabee, Lake Clear, Lake Buckhorn, Lake Pigeon, Lake Sturgeon, River Scugog, Lake Scugog.

The distance from the mouth of the Trent to Port Perry, at the head of Lake Scugog, is 190 miles.

The difference of level between Lake Ontario, at the mouth of the Trent and the head of Lake Scugog, is $570\frac{1}{4}$ feet. Of the whole distance between these two points, only $152\frac{1}{4}$ miles is navigable, while $37\frac{1}{4}$ miles is not even practicable for boats.

Within this distance, various works have been constructed.

The following is a table of distances from the Bay of Quinté:—

	Distances in miles from Mouth of Trent.
On the River Trent, at Nine Mile Rapids (Widow Harris').....	9
" Chisholm's Rapids.....	15 $\frac{1}{2}$
" Ranney's Falls.....	33 $\frac{1}{2}$
" Campbelford	34 $\frac{3}{4}$
" Fiddler's Island.....	36
" Middle Falls.....	37 $\frac{1}{2}$
" Crow Bay.....	38
" Heeley's Falls.....	42 $\frac{3}{4}$
" Hastings (Crook's Rapids).....	54 $\frac{1}{2}$
On the River Otonabee—Whitlas' Rapids.....	93
" Little Lake.....	91
At the foot of Lake Buckhorn—Buckhorn Rapids.....	125
At the foot of Lake Sturgeon—Bobcaygeon Rapids.....	140 $\frac{3}{4}$
On the River Scugog—Lindsay.....	161 $\frac{1}{4}$

LINDSAY.

The dam was repaired.

Difficulty was experienced in keeping the water to a navigable height.

BOBCAYGEON.

Repairs have been made to the dam.

Obstructions have been removed from the head of canal. The channel has been deepened and the bridge repaired.

BUCKHORN.

The dam and waste weir have been partially repaired.

LITTLE LAKE.

The boom and piers have been repaired.

WHITLAS' RAPIDS.

The lock and dam have been repaired.

HASTINGS.

The apron of dam and lock gates have been repaired.

HEELEY'S FALLS.

The apron of dam has been repaired. (Appendix 10, pages 50-52.)

LANDS AND LEASES.

A statement with full detail is given (Appendix 20, pages 98-106), of the water power and other property on the canals, leased by the Department during the fiscal year, and of all property purchased and sold, setting forth the names of the parties interested, the prices paid, and the circumstances under which each transaction took place; likewise of the property declared to be no longer under the control of the Department.

ARBITRATIONS.

During the fiscal year, five hundred and forty-six disputed claims were referred to arbitration; of these three have been adjudicated upon, the amount claimed being \$6,835.10 and the amount awarded, nil.

The remainder are yet to be settled amounting in all to \$211,611.37. (Appendix 21, pages 107-120.)

PUBLIC BUILDINGS.

PROVINCE OF ONTARIO.

OTTAWA.

HOUSES OF PARLIAMENT.

Plans are being prepared to adapt the present Library to a chamber for the Supreme Court.

The present communication will be maintained with the new Library.
A clock has been ordered for the main tower.

LIBRARY.

The decoration of the ceiling has been completed.
The parquetry floor and general fittings will be completed this fall.
The building will be ready for occupation during the autumn.

DEPARTMENTAL BUILDINGS.

East Block.—The usual repairs have been made.

West Block.—It is expected the new building will be roofed in this fall, so that the work of the interior can be carried on during the winter, and the building occupied towards the end of 1877.

The area of the new building covers 1790 ft. with 10 rooms in the basement and 58 rooms on three upper floors.

Three entrances will be had on the ground floor and two on the basement.

The main staircase is of stone in rear of the central tower, with four iron circular stairways.

Each story will be provided with offices. (Appendix 17, page 77.)

GROUNDS.

The terrace walls with the steps and the fountain basin in the centre of the square have been completed.

The drainage, gas and water pipes laid.

The grounds of the square levelled, soided and the paths formed.

The grounds on the canal side of the East Block, those adjoining the workshops yard and those surrounding the Parliamentary Library have been dressed off.

The footpaths are of two kinds, gravel laid on broken stones and the Ewart block pavement which has proved perfectly successful.

WORKSHOPS.

The Bank Street wall has been carried as near as practicable to the river with gates to the workshops and the Lover's Walk.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICE.

This building is now occupied. (Appendix 17, pages 76-79.)

GUELPH.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICE.

Tenders have been received for the building to contain the above offices.

It is intended to erect it at the corner of Wyndham and Douglas Streets. (Appendix 17, pages 79,80.)

TORONTO.

EXAMINING WAREHOUSE.

The building will be ready for occupation at the close of the year.

It will be furnished with a steam hoist.

The lot adjoining has been obtained with a view of extending the accommodation if necessary.

NEW CUSTOM HOUSE.

The building is completed and will be occupied at an early date. (Appendix 17, page 80.)

KINGSTON.

FORTIFICATIONS.

It has been found necessary to rebuild the Commandant's house, and plans are being made for a new structure.

The new military college was occupied on the 1st July 1876.

Plans for the full extension of the building have been accepted and the central portion will be proceeded with.

The stone cutting and all work which can be performed by convicts will be executed at the Penitentiary. (Appendix 17, pages 80, 81.)

MONTREAL.

NEW POST OFFICE.

The building will be completed and ready for occupation at the end of September.

EXAMINING WAREHOUSE.

The offer of the Department having been accepted by the City Council of Montreal the building has been commenced.

It is anticipated that it will be roofed in this fall and the interior work proceeded with during the winter so that it can be occupied next spring. (Appendix 17, page 81.)

QUEBEC AND LEVIS,

FORTIFICATIONS.

A large amount of necessary repairs have been made. (Appendix 17, page 82.)

PROVINCE OF NEW BRUNSWICK.

SAINT JOHN.

POST OFFICE.

The building is completed and occupied.

DORCHESTER

PENITENTIARY, MARITIME PROVINCES.

Tenders will be called for at an early date so that the work can be commenced (Appendix 17, page 82.)

PROVINCE OF NOVA SCOTIA.

HALIFAX.

LAWLOR ISLAND—QUARANTINE STATION

A pier has been erected on the site of the old wharf.

PICTOU.

CUSTOM HOUSE.

The building will be ready for occupation this fall.

SYDNEY, CAPE-BRETON.

MARINE HOSPITAL, BATTERY POINT.

This work is in course of construction. (Appendix 17, page 83.)

PROVINCE OF MANITOBA.

WINNIPEG.

CUSTOM-HOUSE, POST OFFICE, LANDS AND REVENUE OFFICES.

This building is completed and partly occupied.

Some additional fittings are required for the Post Office and Revenue Office.

PENITENTIARY.

This building will be ready for occupation this fall. (Appendix 17, page 84.)

PROVINCE OF BRITISH COLUMBIA.

WESTMINSTER.

PENITENTIARY.

The building will be ready for occupation next spring. (Appendix 17, page 84.)

PROVINCE OF PRINCE EDWARD ISLAND.

SOURIS.

MARINE HOSPITAL.

This structure has been completed. (Appendix 17, page 84.)

BRITISH COLUMBIA.

TELEGRAPH.

The telegraph is in operation as follows:—

	Distance miles.
From Victoria, Vancouver's Island, to Saanich, V. I.	15
From Saanich, Vancouver's Island, to Swinomish, Washington Territory, including five submerged cables.....	60
<p>These cables are each $\frac{1}{2}$ of an inch in diameter, with seven conducting No. 19 copper wires, twisted together and insulated with two coverings of gutta percha $\frac{1}{8}$ inch diameter, with armour of twelve No. 8 galvanized iron wires. The total length of the cables is $16\frac{1}{2}$ miles. Weight about 5,000 lbs. to the mile.</p>	
From Swinomish to Matsqui, on the River Fraser.....	68
Matsqui to New Westminster, River Fraser.....	36
Matsqui to Hope "	59
Hope to Yale "	14
Yale to Lytton "	57
Lytton to Quesnelle "	271
Quesnelle to Barkerville, Cariboo "	52

There is also a branch of ten miles from New Westminster to Burrard's Inlet, constructed by Messrs. Moody & Co.

No breaks occurred in the submerged cables last season, the line however was much damaged by the early freshets, water being in many places 12 feet over the road, and the drift wood carried away the poles and wire. It has been temporarily repaired.

The revenue during the year was \$8,567.41, and the expenditure \$41,329.04.

PUBLIC WORKS.

The penitentiary is nearly roofed in.

It stands on the right bank of the River Fraser, and when completed will be a structure of much importance.

DREDGING VICTORIA HARBOR.

Dredging operations were continued till the 29th of Feb. 1876, when they were discontinued.

BEAVER ROCK VICTORIA HARBOR.

Blasting operations have been continued more effectively, and it is hoped the work will be soon satisfactorily completed

CUSTOM HOUSE.

This department has been suitably furnished. (Appendix 22, page 121.)

NORTH-WESTERN COMMUNICATION.

The line of communication between Fort Garry and Prince Arthur Landing is now generally recognized as the summer route to the Province of Manitoba. Although its capabilities have been only developed in a limited degree, it has nevertheless extended considerable facilities to the transmission of freight and immigrants proceeding to the Red River country.

Until these navigable waters were improved and made accessible, there was no connection between British America and the Valley of the Assiniboine through British Territory, except at an expense practically impossible, and the whole travel to Red River—from the South to Fort Garry—passed, as a necessity, through the State of Minnesota.

There are two routes in the United States open to the choice of the traveller. The one from Detroit entirely by railway, *via* St. Paul to Duluth; the second by steamboat from Detroit, ascends Lake Huron and entering by the St. Mary Canal, follows the longest distance on Lake Superior to Duluth on the westmost bay of that lake.

The distances on the two United States routes may thus be detailed :—

	Miles.
By Railway from Toronto to Detroit.....	225
“ “ Detroit to Chicago.....	284
“ “ Chicago to St. Paul.....	408
“ “ St. Paul to Duluth.....	150
“ “ Duluth to Morehead.....	252
<hr/>	
By Railway.....	1319
By Stage from Morehead to Fort Garry.....	250
<hr/>	
Total.....	1569

The distance by the water route is :—

	Miles.
By Railway from Toronto to Detroit.....	225
By Steamer from Detroit through Lakes Huron and Superior to Duluth.....	773
By Railway from Duluth to Morehead.....	252
By Stage from Morehead to Fort Garry.....	250
<hr/>	
Total.	1500
<hr/>	
Being by Railway.....	477
“ Steamer	773
“ Stage.....	250
<hr/>	
Total.....	1500

The Dominion route is as follows:—

By Railway from Toronto to Collingwood.....	94 Miles.
By Steamer from Collingwood to Prince Arthur Landing through Lake Superior.....	532
From Prince Arthur Landing to Lake Shebandowan	45.00
From Lake Shebandowan to North West Angle, Navi- gable water and Portages.....	312.05
Fort Garry Road from North-West Angle to Fort Garry.....	95.00
	452.05
Total.....	1078.05

The following table gives the intermediate distances on the Dominion Route between Prince Arthur Landing, Lake Superior, and Fort Garry, on Red River, showing the extent of navigable water, the number and length of portages, and the length of the terminal roads:—

Description of Route.	Passage by Land.		Passage by Navigable Water.
	Road.	Portage.	
	Miles.	Miles.	Miles.
From Prince Arthur Landing to Lake Shebandowan.....	45		
Lake Shebandowan.....			18.00
Portage No. 1.—To Lake Kashabowie.....			
Lake Kashabowie.....		0.75	9.00
do 2.—Height of Land Portage to Lac des Mille Lacs, water running to north-west, and south and east.....		1.00	
Lac des Mille Lacs.....			18.50
do 3.—Baril Portage.....		0.25	
Lake Baril.....			8.00
do 4.—Brulé Portage.....		0.25	
Lake Windegostegan.....			12.00
do 5.—French Portage.....		1.75	
Lake Kaogassikok.....			15.00
do 6.—Pine Portage.....		0.38	
Lake Deux Rivières.....			1.22
do 7.—Deux Rivières Portage.....		0.40	
Lake Sturgeon.....			16.00
do 8.—Maligne Portage (lift.) No horse kept here.....			
River Maligne.....			10.00
do 9.—Island Portage.....		0.06	
Lake Nequaquon.....			17.00
do 10.—Nequaquon Portage.....		3.25	
Lake Nameukan.....			15.00
do 11.—Kettle Falls Portage.....		0.12	
Rainy Lake.....			44.00
do 12.—Fort Frances Portage.....		0.12	
Rainy River and Lake of the Woods.....			120.00
From North-west Angle Lake of the Woods to Fort Garry.....	95		
	140	8.33	303.72

RECAPITULATION.

Terminal Roads	140.00
Portages	8.33
Navigable Water.....	303.72

Total Distance..... 452.05

The total number of passengers carried over the road was 2,172.

ROADS.

The various roads have been kept in fair order.

BUILDINGS.

The immigrant houses and other buildings have been examined and put in good condition.

TUGS, BARGES AND BOATS.

General repairs have been made to these vessels.

RIVER MALIGNE.

This river is now navigable by the construction of the dam at Island Portage.

The Maligne dam has been repaired so as to avoid difficulty arising from low water.

FORT FRANCES LOCK.

The principal object in the construction of this lock is to connect Rainy Lake having 44 miles of navigable water with Rainy River and Lake of the Woods, a navigation of 120 miles of 7 feet depth at lowest water.

It is situated at the point adjoining the fall which it is designed to overcome.

At the east, an entrance is formed by guide piers for a length of 174 feet, while the canal at the base of the lock is continued through the point of land, a length of 220 feet.

The lower entrance will also be protected with a line of guide piers, the entrance being 60 feet in width.

The walls of the lock consist of cribwork with rear puddling where the excavation is not in rock, the front being covered with plank sheathing.

The lift of the lock will vary from $22\frac{1}{2}$ feet to 24 feet.

The total length of the canal will be 800 feet.

The work is being carried on under a superintendent by time work. It was commenced on the 14th of June, 1875, and was continued till the 8th of Dec. It was recommenced the end of June 1876, and the work was in full progress at the close of the fiscal year.

Additional works will be especially required on Rainy River to make the navigation complete on the above named reaches, viz:—

1. At $1\frac{1}{4}$ miles above St. Frances.
2. At the swift current at the Manitou Rapids, 36 miles below St. Frances.
3. At the rapids and the crooked channel from the head of the Long Sault Rapids, 42 miles below the Fort. (Appendix 29, page 205.)

RAINY LAKE.

The steamer regularly plying on the lake is in good order. (Appendix 25, page 183.)

PROTECTION OF NAVIGABLE STREAMS.

The condition of navigable streams has formed the subject of comment in the two previous reports.

Throughout the Dominion constant complaints are made that streams are impeded by sawdust and water logged timber at various points in the rivers.

Carried down by the current to the several harbors, the sawdust becomes aggregated with sand and other matter. Shoals are accordingly formed to reduce the depth of harbors, which in many cases it has already been found necessary to remove by dredging.

A continuance of this process will eventually call for work of this character to a great extent, and become the cause of serious expense.

PACIFIC RAILWAY.

The report of the Engineer in Chief, shews the progress made during the last financial year, and a supplementary report brings the record of the surveys and works of construction to the end of December, 1876. (Appendix 26, 27, pages 185, 190.)

RAILWAYS.

INTERCOLONIAL RAILWAY.

The Intercolonial Railway may be subdivided as follows:

		Miles.
PROVINCE OF QUEBEC.		
River du Loup to River Restigouche.....	176	176
PROVINCE OF NEW BRUNSWICK.		
River Restigouche to Moncton.....	198	
St. John to Point du Chêne (Shediac).....	108	
Painsec to Amherst.....	37	343
	<hr/>	<hr/>
		519

PROVINCE OF NOVA SCOTIA.

		Miles.
Amherst to Truro.....	81	519
Truro to Halifax.....	61	
The Pictou Branch from Truro to Pictou.....	52	
The Branch from Windsor Junction, (13 miles from Halifax) to Windsor, being the Eastern terminus of the Windsor and Annapolis Railway.....	32	326
	—	—
Total.....		745

The following districts were in operation for the entire year.

MARITIME PROVINCES.

		Miles.
From Halifax to Amherst.....	138	
Amherst to Painsec.....	41	
St. John to Painsec.....	97	276
	—	
The Pictou Branch from Truro to Pictou.....	52	
Point du Chêne Branch.....	11	63
	—	
From River du Loup to St. Flavie.....		83
		422
		185

From 8th November, 1875, Moncton to Campbellton..

The Windsor and Annapolis Branch has been worked by the Windsor and Annapolis Co., a distance of..... 32 miles.

With running powers from the Junction to Halifax, a distance of..... 13 "

The outlay on capital account is \$13,548,946.07. Of this amount \$316,641.58 was expended during the last year.

The entire line was opened for Express Passenger traffic on 1st July, 1876.

During the summers of 1874-5-6 the track was laid between Ste. Flavie and Moncton, a distance of 291 miles.

The gross earnings for the year were.....	\$848,861 46
For the corresponding year 1875	861 592 43
	—
Decrease.....	<u>\$ 12,731 97</u>

The working expenses for the year were.....	\$877,485 28
For the previous year.....	850,775 27
	—
Increase	<u>\$ 26,710 01</u>

There has been a decrease in the cost of working the portion of the line first opened.

The cost of locomotive power, station expenses and general charges is set forth in appendix. (Table No. 3, page 163.)

The cost of working per train per mile has been reduced from 79.57 cts. to 73.35 cts.

The rolling stock has been well maintained and the cost included in working expenses.

The present stock of cars is considered sufficient for the traffic.

The gross receipts for the year were \$848,861.46, being a deficiency from the working expenses of \$28,623.82.

A new ferry boat has been built and is in use at Pictou.

The price of iron has been low. It has therefore been considered not advisable to dispose of the iron rails replaced by steel rails.

Coal has been supplied at the pit's mouth, Albion mines, at \$1.80 per ton, and at the Junction with main line Spring Hill colliery at \$1.95 per ton.

CASUALTIES.

KILLED.

Three killed: one from head coming in contact with bridge, one falling from train, and the third from being struck by an engine while walking on the track.

INJURED.

2 from engine leaving track; 1 for life, engine passing over leg; 2 train breaking from engine and running down grade; 1 crossing track in sleigh, struck by engine leg amputated; 1 uncoupling, finger crushed; 1 shunting, 3 toes amputated; 1 brakes man, arm crushed.

These various accidents are attributable to no want of care in working the Railway.

In cases of death the coroners' juries returned verdicts exonerating the Railway servants.

NEW WORKS.

In the matter of the Halifax extension the works are being pushed rapidly on. They will not be completed till next season.

The North street station has now a temporary passenger station. The freight station is finished and in use.

At St. John, the track at Courtenay Bay is in course of construction to connect with ballast wharf purchased from the city.

The substitution of steel for iron rails was carried on, 3181 tons being laid during the year.

The whole of the iron rails will be replaced by steel by the 30th June 1878.

50,971 new sleepers were placed under track and \$18,000 expended in ballasting, under the new rails.

By Parliamentary authority the following lines received loans of the iron rails removed:—

Chatham Branch	9 miles.
Elgin do.....	12 “

A large extent of snow sheds and fencing is in course of construction on exposed parts of the line.

During the year three new sidings have been constructed equal to a total length of 0.77 of a mile, 7 new coal drop sidings have been laid equal to 0.32 of a mile, making a total of 1.60 miles.

The following structures have been erected:—

1 passenger and freight station, 1 agent's dwelling house, 3 freight houses, 1 station house enlarged.

Signal switches and semaphores have been erected in all stations hitherto not furnished with them.

The system of signals is now complete.

The fire service pipes at Moncton have been laid.

The shops at Moncton have been provided with heating apparatus.

A new snow plough has been built as an experiment. It will be tested during the ensuing winter.

The wharf at Pictou has been lengthened 615 feet with an average width of 52 feet, so as to give 22 feet of water.

68,275 new sleepers, including all additions, have been placed in track.

25,703 rods of fencing renewed and fencing generally repaired.

The buildings are in good repair.

The rolling stock is in good condition.

The line with its appointments is well maintained. (Appendix 16, page 73.)

PRINCE EDWARD ISLAND RAILWAY.

The total length of this Railway built on the 3-feet 6-inch. gauge is 198.5 miles.

Main line Cascumpec to Georgetown..... 146.2 miles.

Western Extension :—

Tignish to Alberton..... 13.3 “

Eastern Extension :—

Mount Stewart to Souris..... 39.0 “

Total length..... 198.5 “

It was stated in the last report that this railway was constructed as a cheap railway. Certain governing points in view of the general interest were originally set forth by the Provincial Orders in Council which determined the location, totally independent of any question of directness of route or of grade; at the same time a limit was imposed on the expenditure per mile.

The cost was \$2,862,766 exclusive of right of way.

The total cost per mile \$16,300.

The Railway was consequently not of a faultless character when assumed by the Dominion Government.

The rolling stock was not fitted for the work it had to perform. The engines were small and of insufficient power. The number of cars was limited. The fencing was inferior and required to be replaced. There was no snow-fencing.

These deficiencies indeed were reported by Mr. Swinyard, but on reference of the question to Mr. Shanly it was determined that the contract had been fairly carried out, and the line was accepted with the knowledge of its imperfect condition.

\$200,000 was accordingly appropriated at the last session of Parliament to supply the deficiency.

The rolling stock is now being placed in a state of efficiency.

A Machine Shop and General Superintendent's Office are being erected at Charlottetown.

From the 12th May to 30th of June 1875, the working was as follows :—

Earnings.....	\$24,493 99
Expenses.....	47,671 43
Loss.....	<u>\$23,177 44</u>

And for the year ended 30th June 1876 :—

Earnings.....	\$118,060 96
Expenses.....	214,930 43
Loss.....	<u>\$ 96,869 47</u>

The traffic in winter has been exceedingly small, it is, however, premature to speak of the ultimate character it will take. Hitherto the carrying trade of the Island has been carried on in small coasting vessels at moderate cost, the consequence is that railway rates have been kept at a low figure.

The maintenance of line will be expensive.

There is a deficiency of ballast which requires to be made good.

The masonry is inferior and the rails are 40 lbs. to the yard and too light for the duty imposed upon them. Wherever the grades are steep and the curves sharp there are already signs of wear.

93,968 passengers and 28,358 tons of freight were carried over the road during the year. (Appendix 23, page 127).

I have the honor to be, Sir,

Your obedient Servant

T. TRUDEAU,

Deputy of the Minister

of Public Works.

APPENDICES OF THE REPORT

OF THE

MINISTER OF PUBLIC WORKS

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1876.

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APPENDIX No. 1.

STATEMENT showing the amount expended by the Department of Public Works, Dominion of Canada, during the fiscal year ended 30th June, 1876.

Name of Work.	Construction.	Repairs.	Staff and Maintenance.
	\$ cts.	\$ cts.	\$ cts.
<i>Canals.</i>			
Lachine.....	327,769 39	29,103 65	33,854 33
Beauharnois.....		17,170 83	14,465 86
Cornwall.....		6,423 67	13,220 61
Williamsburgh.....		11,690 98	7,418 39
St. Lawrence.....	50,215 47		
Welland Canal.....	1,569,478 19	79,241 12	59,998 31
do damages.....	700 00		
Burlington Bay.....		1,190 86	
Ste. Anne's Lock.....	24,935 85	4,037 06	1,952 14
Carillon & Grenville Canals.....	221,708 48	8,598 07	10,764 38
Carillon Canal and Dam.....	104,494 68		
Culbute Rapids Lock.....	76,842 44		
Rideau.....	2,183 96	14,428 25	26,430 77
St. Ours Lock.....		1,601 71	1,402 92
Chambly Canal.....		13,297 39	10,619 69
St. Peter's.....	11,125 09		641 55
Baie Verte.....	110 75		
Canals generally.....			86 08
<i>Slides and Booms.</i>			
Saguenay.....		4,025 20	716 05
St. Maurice.....	25,436 20	4,490 87	18,518 51
Ottawa.....	20,000 00	16,220 38	20,168 54
Newcastle.....		2,302 75	2,300 82
<i>Harbors and Piers.</i>			
Bayfield, Ontario.....	18,398 13		
Chanzy Island, do.....	41,624 98		
Cobourg, do.....	23,403 08		
Goderich, do.....	127,200 44		
Kincardine, do.....	6,838 22		
Kingston, do.....	6,267 14		
Napanee, do.....	7,527 39		
Oshawa, do.....	5,000 00		
Owen Sound, do.....	6,626 66		
Port Burwell, do.....	3,422 22		
Port Darlington, do.....	5,000 00		
Port Hope, do.....	14,372 62		
Port Stanley, do.....	4,732 05		
Toronto, do.....	2,824 97		
River Detroit, do.....	7,060 32		
River Ottawa, do.....	918 75		
Quebec Harbor survey, Quebec.....	6,458 02		
Piers below Quebec, do.....		586 70	
Baie St. Paul, do.....	11,567 91	6,845 80	
Carried forward.....	2,734,223 31	221,255 29	222,659 95

APPENDIX No. 1.—Continued.

Name of Work.	Construction.	Repairs.	Staff and Maintenance.
	\$ cts.	\$ cts.	\$ cts.
<i>Brought forward</i>	2,734,223 31	221,255 29	222,650 95
<i>Harbors and Piers.—Continued.</i>			
Eboulements, Quebec.....	5,773 97	4,234 27	
Malbaic, do	8,000 00	6,021 04	
Saguenay—Chicoutimi, do	1,857 12	119 28	
do Bagotville, do	2,019 60	1,064 74	
Rivière Blanche Pier, do	873 65		
River Richelieu improvement, Quebec.....	3,988 21		
River St. Lawrence—removal of booms and anchors do deepening between Quebec and Montreal.....	12,008 32		
192,000 00			
Campo-Bello, New Brunswick.....	600 00		
Dipper, do	279 00		
Grande Anse, do	3,000 00		
Pointe du Chêne do	7,228 37		
Richibucto, do	10,853 42		
Shippegan, do	6,312 80		
St. John, do	64,335 66		
River Miramichi, do	2,955 48		
River St. John, do	3,332 80		
Broad Cove Breakwater, Nova Scotia.....	3,000 00		
Church Point, do	2,000 00		
Cow Bay, do	46,458 95		
Cranberry Head, do	2,000 00		
Harborville, do	2,000 00		
Ingonish South, do	17,926 00		
Jordan Bay, do	17,465 00		
Liverpool, do	8,933 96		
Mabou, do	10,088 16		
Maitland, do		1,220 30	
Margaree, do	3,000 00		
Margaretville, do	5,000 00		
Meteghan Cove, do	5,000 00		
Michaud and Mark Pts., (Breakwater between) N.S.	97 21		
McNair's Cove, do	3,699 60		
Oak Point, do	15,000 00		
Oyster Pond, (Chedabucto Bay) do	2,000 00		
Port Greville, do		3 00	
Saulnierville, do	2,000 00		
Trout Cove, do	4,000 00		
Yarmouth, do	314 54		
East River of Pictou, do	342 73		
Improvement of channel between Tusket Island and Mainland do	500 00		
Colville Bay, Prince Edward Island.....	20,000 00		
New London, do	503 50		
Tignish, do	4,557 50		
River Fraser, British Columbia.....	1,621 63		
Dredge Vessels.....	26,545 67		
Dredging, Ontario and Quebec.....	25,783 92		
do Maritime Provinces.....	49,788 22		
do British Columbia.....	17,731 52		
<i>Surveys.</i>			
Pacific Railway.....	791,121 19		
Generally	42,920 10		
Arbitrations.....			5,690 28
<i>Carried forward</i>	4,191,041 11	233,917 92	228,350 23

APPENDIX No. 1.—Continued.

Name of Work.	Construction.	Repairs.	Staff and Maintenance.
	\$ cts.	\$ cts.	\$ cts.
<i>Brought forward</i>	4,191,041 11	233,917 92	228,350 23
<i>Roads.</i>			
Métapédia.....		100 00	
Red River Route.....	12,038 79	16,460 98	59,798 95
<i>Public Buildings.</i>			
Generally.....		8,519 56	
Hamilton Post Office, Ontario.....		2,039 35	
do Custom House, do.....		1,781 61	
Kingston Custom House, do.....		85 67	
do Post Office, do.....		14 45	
do Military Bldgs and fortifications, Ontario.....	5,490 00	53,473 24	
London Immigration Station, do.....	3 72		
do Post Office, do.....		942 71	
Ottawa Post Office, do.....	72,704 59		
do Parl. and Departmental Bldgs., do.....	267,839 73	81,768 95	
do do Heating, do.....			45,408 21
do do Gas, do.....			12,000 00
do Temporary Offices, Supreme Court, do.....		500 00	
Rideau Hall, do.....		42,031 92	
St. Catharines Marine Hospital, do.....	2,000 00		
Toronto Custom House, do.....	31,694 06		
do Examining Warehouse, do.....	149,862 41		
do Post Office, do.....	2,500 00	6,838 54	
do Savings Bank and Inland Revenue Office, do.....		6,132 12	
Grosse Isle, Quarantine Station, Quebec.....	10,695 90		
Montreal Custom House, do.....		3,593 77	
do Examining Warehouse, do.....	74,843 51		
do Geological Museum, do.....		43 00	
do Inland Revenue Office, do.....		2,059 40	
do Post Office, do.....	71,783 14		
Quebec Citadel Buildings, do.....		1,003 02	
do Cutlers' Office, do.....		39 49	
do Custom House, do.....		1,195 85	
do and Levis Fortifications, do.....		15,357 55	
do Marine Hospital, do.....		2,003 49	
do Observatory, do.....		13 92	
do Post Office, do.....		3,054 41	
do Public Buildings, do.....		1,389 42	
St. Vincent de Paul Penitentiary, do.....	4,076 87		
Three Rivers Custom House, do.....		581 88	
New Castle Custom House, New Brunswick.....		90 00	
St. John Custom House, do.....		3,365 67	
do Post Office, do.....	27,243 37		
Westcock Marine Hospital, do.....		1,797 44	
Halifax Quarantine Station, Nova Scotia.....		1,010 00	
do Dominion Buildings, do.....		7,754 05	
Pictou Custom House, do.....	14,086 00		
do Quarantine Station, do.....		408 82	
Sydney Marine Hospital, do.....	6,995 52		
Yarmouth Quarantine Station, do.....	152 12		
Charlottetown, Dominion Bldgs, P. E. Island.....		1,341 10	
Souris Marine Hospital, do.....	3,574 87		
Manitoba Custom House, Post Office, &c.....	40,093 49		
do Penitentiary.....	60,597 20		
Winnipeg Provost Prison.....		305 18	
<i>Carried forward</i>	5,049,015 40	504,014 38	345,557 39

APPENDIX No. 1.—Continued.

Name of Work.	Construction.	Repairs.	Staff and Maintenance.
	\$ cts.	\$ cts.	\$ cts.
<i>Brought forward</i>	5,019,015 40	504,014 88	345,557 39
<i>Public Buildings.—Continued.</i>			
Battle River Barracks, N. W. Territories.....	8,000 00		
Fort Pelly do do	33,966 94		
do Government House, do	1 636 14		
Custom House, Victoria, British Columbia.....		14,731 83	
Post Office Building, do		102 00	
Penitentiary, New Westminster, do	78,114 79		
Telegraph Lines, do			37,329 04
Do (Subsidy) do			4,000 00
Penitentiaries generally		3,673 73	
Maritime Provinces Penitentiary, Dorchester, New Brunswick.....	21,860 00		
<i>Railways.</i>			
Fort Garry and Pembina	175,965 00		
Pacific Railway.....	2,302,951 53		
do Fort Francis Locks.....	76,529 34		
Intercolonial.....	998,991 46		1,277,197 79
Prince Edward Island.....	42,546 10		219,930 43
Government Railways, Nova Scotia and New Brunswick	109,330 13		
Total.....	8,993,906 83	522,521 94	1,884,014 65
Total Expenditure.....	\$11,405,443 42		

J. BAINE,
Accountant.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 30th June, 1876.

APPENDIX No. 2.

ST. LAWRENCE NAVIGATION.—TABLE OF DISTANCES.—A.

FROM STRAITS OF BELLE-ILE TO DULUTH, AT HEAD OF LAKE SUPERIOR, BY WATER.

From	To	Sections of Navigation.	Statute Miles.	
			Inter-mediate.	Total to Straits of Belle-Ile.
Straits of Belle-Ile.....	Cape Whittle.....	Gulf of St. Lawrence.....	240	240
Cape Whittle.....	West Light, Anticosti.....	do do.....	201	441
West Light, Anticosti.....	Father Point.....	River St. Lawrence.....	202	643
Father Point.....	Rimouski.....	do do.....	6	649
Rimouski.....	Bic.....	do do.....	12	661
Bic.....	Isle Verte.....	do do.....	39	700
Isle Verte (opp. Saguenay).....	Quebec.....	do do.....	126	826
Quebec.....	Three Rivers.....	do to Tidewater.....	74	900
Three Rivers.....	Montreal.....	do do.....	86	986
Montreal.....	Lachine.....	Lachine Canal.....	8 $\frac{1}{2}$	994 $\frac{1}{2}$
Lachine.....	Beauharnois.....	Lake St. Louis.....	15 $\frac{1}{2}$	1,009 $\frac{1}{2}$
Beauharnois.....	St. Cécile.....	Beauharnois Canal.....	11 $\frac{1}{2}$	1,021
St. Cécile.....	Cornwall.....	Lake St. Francis.....	32 $\frac{1}{2}$	1,053 $\frac{1}{2}$
Cornwall.....	Dickinson's Landing.....	Cornwall Canal.....	11 $\frac{1}{2}$	1,065 $\frac{1}{2}$
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070 $\frac{1}{2}$
Farran's Point.....	Upper end of Croyle's Island.....	Farran's Point Canal.....	$\frac{3}{4}$	1,071
Upper end Croyle's Island.....	Williamsburgh or Morrisburgh.....	River St. Lawrence.....	10 $\frac{1}{2}$	1,081 $\frac{1}{2}$
Williamsburgh.....	Rapid Plat.....	Rapid Plat Canal.....	4	1,085 $\frac{1}{2}$
Rapid Plat.....	Point Iroquois Village.....	River St. Lawrence.....	4 $\frac{1}{2}$	1,090
Point Iroquois Village.....	Upper end Presqu'île.....	Point Iroquois Canal.....	3	1,093
Presqu'île.....	Point Cardinal, Edwardsburgh.....	Junction Canal.....	2 $\frac{5}{8}$	1,095
Point Cardinal.....	Head of Galops Rapids.....	Galops Canal.....	2	1,097 $\frac{1}{2}$
Galops Rapids.....	Prescott.....	River St. Lawrence.....	7 $\frac{3}{8}$	1,105 $\frac{1}{2}$
Prescott.....	Kingston.....	do do.....	59	1,164
Kingston.....	Port Dalhousie.....	Lake Ontario.....	170	1,334
Port Dalhousie.....	Port Colborne.....	Welland Canal.....	27	1,361
Port Colborne.....	Amherstburgh.....	Lake Erie.....	232	1,593
Amherstburgh.....	Windsor.....	River Detroit.....	18	1,611
Windsor.....	Foot of St. Mary's Island.....	Lake St. Clair.....	25	1,636
Foot of St. Mary's Island.....	Sarnia.....	River St. Clair.....	33	1,669
Sarnia.....	Foot of St. Joseph's Island.....	Lake Huron.....	270	1,939
Foot of St. Joseph's Island.....	Foot of Sault St. Mary.....	River St. Mary.....	47	1,986
Sault St. Mary.....	Head of Sault St. Mary.....	Sault St. Mary Canal.....	1	1,987
Head of Sault St. Mary.....	Point aux Pins.....	River St. Mary.....	7	1,994
Point aux Pins.....	Duluth.....	Lake Superior.....	390	2,384

Of the 2,384 miles from the Straits of Belle-Ile to the Head of Lake Superior, 71 $\frac{1}{2}$ miles are artificial navigation, and 2,312 $\frac{1}{2}$ open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical, or 2,234 statute miles.

The total fall from Lake Superior to Tide-water is about 600 feet.

APPENDIX No 2.—*Continued.*

TABLE OF DISTANCES.—B.

FROM PRINCE ARTHUR LANDING (LAKE SUPERIOR), TO FORT GARRY (WINNIPEG), BY THE CANADIAN ROUTE.

	Statute Miles.	
	Inter- mediate.	Total.
Prince Arthur Landing to Shebandowan Lake.....	45	45
Shebandowan Lake to North West Angle	312	357
North-West Angle to Fort Garry (Winnipeg).....	95	452

The Steamboat voyage from Collingwood to Prince Arthur Landing is 532 miles.

APPENDIX No. 3.

CANAL OFFICE,
MONTREAL, July, 1876.

SIR,—I have the honor to submit the following report on the works under my charge for the fiscal year ended 30th June, 1876.

The old works have all been efficiently maintained during the year, and fair progress made in the construction of the new works, except at Carillon, where little has been done beyond the delivery of timber and other material.

Full details of the year's operations on new works under contract will be found in the annexed reports of the Assistant Engineers.

Statements of the amounts collected for fines and damages, with monthly returns of the highest and lowest water on each Canal, are also forwarded.

LACHINE CANAL.

The navigable season for the year consisted of 214 days of uninterrupted navigation. The canal was closed by ice on the 30th day of November, 1875, and reopened for the passage of vessels on the 1st day of May, 1876.

From 1st July to the close of the season of 1875, the principal works consisted in repairing and replacing lock gates, replanking the wharves, flour sheds, bridges, and in repairing banks and towing paths, placing snubbing posts, and rebuilding a large portion of the masonry in the superstructure of the wing dam at Lachine, which had been displaced by ice and water during the previous spring freshets.

During the winter months a pair of new gates were built for the lower end of Lock No. 2, and the heel portion of Brewster's swing bridge overhauled and rebuilt.

The water was drawn off for repairs on the 19th April, after which the slope walls were repaired, and the bottom of locks 3 and 4 thoroughly cleaned. The walls of Lock No. 2, five of the weirs, and a portion of the Lock wall of Basin No. 2 were pointed. The gates of the weirs at Basin No. 2 were furnished with lifting chambers and otherwise repaired. The valves and chain rollers of Locks Nos. 3 and 4, and lower gates of Lock No. 5 were repaired and put in good working order. The water was let into the Canal on the 28th April to protect the River St. Pierre culvert from damage by a freshet. After the Canal was filled, the new gates built during the winter were placed in Lock No. 2, the old ones were hauled out, thoroughly repaired and replaced in the lower end of Lock No. 1.

All the lock gates in use on this Canal are in good order; there are also five pair of spare gates on hand all in good repair. The materials for a stop gate at Lock No. 5 have been provided, this gate when finished will be kept so that it can be quickly placed in position when required.

The bridges are in good working order. Bridge No. 1 was provided with new segment plates, new rollers, new pivot sockets and other minor repairs.

The high water and ice this spring in passing down has again removed a large portion of the masonry of the wing dam at Lachine, which should be rebuilt this fall, during low water. Several of the guide and boom piers at Lachine are in a very bad condition, and should be rebuilt. The government fence, which extends from Lock No. 5 to the old dépôt, on the line of the old canal, must also be repaired and painted.

The timber trade has caused more or less interruption and delay to the passage of vessels at the Lachine entrance, owing chiefly to the careless manner in which the rafts were secured by the proprietors. With this exception, the general working of the traffic on this Canal has been very satisfactory.

STEAM DREDGE.

From the close of the last fiscal year to the beginning of October, this dredge was at work removing the toe of the slope, and cleaning up the bottom in the Lachine Canal between the St. Gabriel Lock and the Grand Trunk Railway Bridge. It was then sent to the mouth of the Chateauguay River, where a large amount of work was done in removing shoals. On completing this work in November, it was brought back to the upper entrance of the Lachine Canal, and was there employed till the close of navigation in removing a shoal of boulders deposited in the channel by the ice during the previous spring. The dredge and scows were then hauled out on the Canal bank at Côte St. Paul, where they were thoroughly repaired and in June were sent to work in the River Richelieu.

LACHINE CANAL ENLARGEMENT.—MONTREAL DIVISION.

The sections numbered 1, 2, 3, 4, 5, 6 and 7 are comprised in this division.

Sections 1 and 2 were let in September 1873, and now form one contract, Messrs. James Worthington & Co., Contractors. Section No. 3 was let to Messrs. McNamee Gaherty and Frechette, on the 20th November last. The remaining sections were let in April 1876, No. 4 to Messrs. Whitney and Dotey, No. 5 to Mr. Alphonse Charlebois, and Nos. 6 and 7 to Messrs. Davis & Sons.

Sections Nos. 1 and 2.

The works on Section No. 1 include a new harbor entrance of two locks with a basin between them, a regulating weir, bridge abutments, &c., &c.

On section No. 2 the works include the construction of Wellington Basin and the enlargement and deepening of Basin No. 2.

Lock No. 1

The excavation of this lock pit was carried down last summer to within three feet of foundation level. A large amount of stone has been prepared at Terrebonne quarries for the lock walls, some of this material together with timber and plank for the foundation has been delivered at the site of the lock.

Basin No. 1.

The masonry of the lock walls of this basin on the east side and both ends was carried up during the season of 1875 to an average height of 18 feet. Work was resumed on the 5th June, and the walls were nearly completed at the close of the fiscal year.

Lock No. 2.

The laying of the timber foundation of this lock was begun on the 27th July 1875. The masonry was commenced on the 7th October, and was continued till the 15th November. During this time the chamber walls were built to a height of three feet, and those of the upper recess and breast wall to a height of five feet.

Owing to high water in the river, the work of laying masonry had not been resumed at the end of the fiscal year.

Basin No. 2.

During the summer and fall of 1875 the excavation for the enlargement of this basin at its upper end, was continued partly by men and horses, and partly by the steam excavator which had been working in the Wellington Basin. A steam dredge

was also employed deepening the bottom of the present basin. Work was suspended during the winter, but was resumed early in the spring in the same manner and with the addition of another dredge.

Wellington Basin.

The excavation of this basin is now nearly all done. The dock walls surrounding it, are well advanced, and at the present rate of progress will be completed this season except at the points of junction with the present basin, which cannot be finished until the Canal is unwatered. The brick sewer on the south east side has been completed and the wharf behind the dock wall has been commenced at the upper end.

Section No. 3.

Excavation for widening the prism of the Canal was commenced outside of the north bank above St. Gabriel Basins on the 3rd January, 1876, and carried on till the 1st April; work was then discontinued on account of the spring freshets, but resumed in May. The Contractors are now forming the new north bank with carts, and fitting up powerful dredges and derricks for deepening and enlarging the prism. Quarries have also been opened at Grande Ligne and Caughnawaga, where large quantities of stone have been quarried for the dock and dock walls, and a considerable quantity delivered on the work.

Sections Nos. 4, 5, 6 and 7.

The excavation was commenced on section No. 4 on the 8th day of June, and on sections Nos. 5 and 6 on the 13th, when a large force of men and teams was employed until the close of the season.

The Contractors were also making arrangements for opening quarries and procuring steam dredges and derricks, steam pumps and such other material and plant as they require for the successful prosecution of the works.

LACHINE DIVISION.

This division embraces sections Nos. 8, 9, 10 and 11. The length of the different sections are as follows, viz :

Section No. 8.....	7,500 feet.
“ 9.....	6,000 “
“ 10.....	1,400 “
“ 11.....	6,200 “

Being a total of.....21,100 feet or 4.07 miles.

Tenders were received for sections 9 and 10 on the 12th January, 1876. The contract for section 9 was awarded to Messrs. John Lyons & Co., of Ottawa, and that for section 10 to Messrs Rodgers, Kelly & Co.

Work was commenced under these contracts on the 3rd February and was carried on with a small force during the remainder of the winter, and with the usual difficulties attending works of excavation in this country at that season of the year. The excavation done during this period consisted principally in the removal of the old spoil bank and quarry refuse.

The material from Section 10 was deposited in the embankment to be formed outside of the pier work on Section 11

During the months of May and June the work was vigorously prosecuted on Section 9, and, at the end of the year, the contractors had completed nearly all the earth excavation to be done above water surface.

On Section 10, during the same period, the progress was slow, owing chiefly to the pits being flooded by the unusually high water in the river, which was at its highest stage on the 13th of May.

There was also delay in obtaining the right of way. Tenders for Sections Nos. 8 and 11 were received on the 21st day of March. The contract for Section 8 was awarded to Messrs. O'Brien and Sullivan, of Montreal, and for Section No. 11 to Messrs. Wm. Davis and Sons, of Ottawa. Work on Section No. 11 was commenced in the latter end of June by the delivery of a quantity of timber for crib work.

On Section 8 up to the 30th June, the contractors had not commenced work, except in the way of procuring steam dredges and derricks and other plant required for their operations.

ST. PATRICK STREET.

The work of extending this street from the pipe track of the Montreal Water Works (Atwater Avenue) to Côte St. Paul Lock, a distance of about 6,000 feet, was fully completed in the beginning of August, when it was opened and brought into use.

BEAUHARNOIS CANAL.

This Canal was closed on the 25th November, 1875, and reopened on the 1st May, 1876, being an open season of 209 days. During this period, four accidents occurred which caused interruptions to the traffic amounting to a total of 129 hours. Three of these accidents took place at Lock No. 12, where the gates were carried away, the first time on the 7th August, by the Propeller "Lake Ontario"; the second, on the 27th August, by the Propeller "Prussia"; and the third on the 27th September, by the Steamer "Passport." The fourth accident was on the 17th October, when the steam barge "Adventure" of Kingston carried away the gates of Lock No. 7. In repairing Lock 12 the lower gates were twice renewed, and the gates first broken were repaired and replaced after the third breakage.

At Lock No. 7 the upper gates were renewed and the lower ones replaced.

These repeated accidents caused considerable damage to the banks and to the adjoining lands, especially on the north side between Locks 11 and 12, where, for about a mile in length, the top and outside slope of the bank was washed away by the overflow. A large force of men was employed until the close of the season in repairing the banks and in clearing out ditches and off-take drains, filled with the *débris*.

The slope walls along the whole line were repaired while the water was out in April; and about 900 feet of the bank, opposite the big basin, was raised about 18 inches. A bad leak in the culvert above St. Timothy Bridge was also repaired.

A slope wall 500 feet long was built on the east side of the head race, at the east end of the lower dam.

The protection pier and wharf at the upper entrance was repaired. The dams and the dyke at Hungry Bay were damaged by high water in May and June. The dams have been repaired, but the dyke at Hungry Bay still requires to be raised and protected at several points.

This dyke, and the dams at the upper entrance, and portions of the canal banks, about 27 miles in all, are used as public roads and have been kept in repair as such during the year, which adds largely to the cost of maintenance.

The west or outside pier at the lower entrance was badly damaged by ice last winter. About 200 feet in length of the ice breaker and superstructure was carried away which must be rebuilt during the season.

The Swing Bridge at St. Timothy, which was being rebuilt at close of the last fiscal year, was finished and painted in July and August. The bridge over the Lock, and the hand rail, posts and chains round the supply weir at Valleyfield were also painted. New pivots were placed under the swing bridges at Locks 9, 12, and 13, and the flooring renewed.

Five bridges over the regulating weirs and raceways at Locks 7, 8, and 11; and eight farm bridges over off-take drains, were rebuilt and repaired.

Two pair of lower gates were built and hung with the new suspension gear in Locks 6 and 9. Six pair of damaged gates were also hauled out, taken apart and rebuilt. The upper gates of Lock No. 9 were replaced by new gates. The gates at Locks 8, 10, 11 and 13 were also repaired.

Three new bumping posts were placed at Lock 6; 2 at Lock 7; 1 each at Locks 8 and 9; and 2 at Lock 10 were repaired and the whole painted.

The walls of the culvert near Valleyfield were repaired and pointed. The lock-master's houses at Locks 12 and 13, and those of the lockmen at Locks 8, 11 and 13 were repaired.

Considerable repairs were also made to the dwelling and office occupied by the Collector and to the house occupied by the Superintendent.

All the side ditches and off-take drains were cleaned and repaired.

CHAMBLY CANAL.

This Canal was closed on the 22nd day of November 1875 and opened on the 1st of May 1876, the navigable season consisting of 206 days.

During the first portion of the fiscal year the superstructure of the wharf at St. John's was renewed for a length of 284 feet and 4 feet in depth. The wing walls of Lock No. 1 and the lock house at No. 6 were repaired and three sluice gate frames made and inserted.

The mechanical structures, canal banks and towing path were kept in good working order; 34 snubbing posts were driven with the pile driver in the wharf at St. John's and bridge No. 7, and 14 were set by hand in the banks. The ditches were cleared out and several farm bridges over them rebuilt.

At the close of the season, all the locks were braced.

In the spring, the wharves above lock No. 2, on the tow path side, and on both sides above Lock No. 7 were rebuilt. Both abutments of bridge No. 2 were taken down and rebuilt; that on the east side in wood, and on the west in cut stone masonry.

Bridges Nos. 5 and 7 were repaired and fenders placed on both sides and on the west side of Bridge No. 2.

The Bywash between Locks 5 and 6 was rebuilt, the upper mitre sill of Lock No. 5 was repaired and new gearing placed on the sluice gates of Lock No. 4. 2 watch houses were built at lock No. 9 and bridge No. 6. Timber is now being prepared for a pair of spare lock gates and also for a new bridge.

The Lock house at Lock No. 1 was burned at the time of the great fire in June when the largest portion of St. John's was destroyed.

RIVER RICHELIEU.

The work of dredging and improving the channel of this River was resumed in September 1875 by the Steam Dredge which had been lent during the early portion of the season to Messrs. Ross, Ritchie & Co. of Three Rivers, where it was employed in improving the channel at the mouth of the River St. Maurice. The dredge began work at Belœil on the 13th day of September deepening the channel under the swing bridge of the Grand Trunk Railway Company, and in the approaches between the guide piers above and below it. After the required depth of 7 feet at low water had been obtained at these points, the dredge dropped down to a shoal about 200 yards below the bridge, where it remained until the close of the season. It was removed to winter quarters in the Lachine Canal at Montreal, and hauled out for repairs where it still remains.

The dredge which worked in the Lachine Canal last year was ordered to the River Richelieu this season, where it commenced work on the shoal below the Railway bridge on Monday 26th June.

After finishing at that point, it will proceed down the River to St. Marc and St. Antoine, at each of which places there are extensive shoals.

ST. OURS LOCK AND DAM.

The piers forming the approaches to this Lock were repaired with timber, and the embankment on the east side at lower end widened, and the dry protection wall renewed. The top bars and platforms of the upper gates were also renewed and painted; the chains and chain hooks of lower gates were renewed. Eight new cast iron valves have been procured for replacing those now in use which are broken. The landing stage for the ferry was taken up last fall and replaced in June. In March the ice was sawn and removed from lower end of lock and gates.

A boom was placed between the anchor piers, and 88 toises of stone used in protecting the main dam, its abutments and anchor piers.

About 200 lineal feet of fencing was renewed along the road on west side of River opposite the dam.

The Superintendent's house, outbuildings, and fences as well as the lock-house were repaired and painted.

The navigation closed at this Lock on the 22nd November 1875, and opened on the 19th April 1876.

RIVER ST. FRANCIS.

The work of forming and improving the navigable channel between Pierreville Mills and Lake St. Peter by dredging, was resumed on the 16th June 1875 and continued till the 30th September, when a fifty foot channel, between the points above referred to was completed.

ST. ANNE'S LOCK AND DAM.

The navigation closed on the 22nd November 1875 and opened on the 1st May 1876, being an uninterrupted navigable season of 206 days.

During the high water season in May, the water was 18 inches in depth on lock-walls, which was fully one foot higher than any level recorded. During this time the navigation was maintained by the construction of temporary dams on each side of the Lock above the lower gates.

The superstructure and sheeting of wing dam was repaired for a length of 400 feet upwards from the Lock. Two of the guide piers on the north side of upper entrance were removed and replaced by new works.

The lock walls were pointed and the Collector's dwelling house repaired. The Lock walls leak badly, and the lower wing walls require repairs. The gates have been in excellent working order since the repairs of 1874-75. The superstructure of that portion of the wing dam above the Lock, not repaired last year, should now be renewed, and one of the guide piers on the north side of the channel rebuilt. The whole superstructure of the mooring pier below the Lock on north side of the channel was broken up and partially carried away by the high water in May, the timbers being so much decayed that they had not strength sufficient to resist the strong currents and eddies formed by the water rushing down the Rapids.

NEW WORKS.

A new Canal is being formed across the shoal below the lock to connect with the deep water channel on the Isle Perrot side, and thus avoid the more direct but shallow and intricate channel now in use along the north shore. It will be about 1,200 feet in length by 120 feet in width, excavated to a depth of 10 feet 6 inches at low water.

The sides of the new channel are formed of continuous cribwork with an embankment in rear, consisting of puddle and the material excavated from the new channel, which consists of clay, boulders and solid rock.

At the close of the last fiscal year, these works had not been unwatered, but pumping was commenced on 3rd July, and the excavation of the channel resumed on the 6th. After this date, the works were successfully carried on until the 17th day of November, when they became so much blocked by the accumulation of ice, that operations were suspended. During this time, the cribwork superstructure, sheet piling and puddle wall have been carried on satisfactorily.

During the winter, the cribs forming the wings at the upper entrance, were built and sunk in position which was all that could be done on account of the treacherous condition of the ice. Up to this date the water has not fallen sufficiently low to admit of unwatering.

Four cribs forming the upper entrance, and about 1,000 lineal feet of superstructure remain to be built, with the necessary sheeting and puddle bank.

The excavation is about one half finished.

This work should be completed before the season of low water in 1877, after which there will be about one season's dredging required in removing the points of shoals and boulders from each entrance to the new channel.

CARILLON CANAL.

During the past year, the walls of Locks Nos. 1, 2 and 3 were pointed, and the mechanical structures, gates, &c., repaired and painted; the towing path between Locks 2 and 3 widened, and fences and public road kept in order, and before the opening of navigation the prism of Canal was cleaned.

The upper gates of Lock No. 2 and lower gates of No. 3 were overhauled and rebuilt.

Owing to the high level of the River Ottawa, on the 14th May it was found necessary to close the Canal by putting stop logs in the checks at the upper entrance of Lock No. 3. to prevent the River from flowing directly through the Canal; notwithstanding this precaution, considerable damage was done to the banks, road and fences.

The usual repairs have been made to the North River, dams and feeder.

CHUTE A'BLONDEAU CANAL.

Ordinary repairs only were made on this Canal during the year.

On the 10th May the Lock was submerged to the depth of twenty inches by the high water of the River Ottawa, which interrupted the navigation. The water continued to rise until it stood four feet over the coping.

The navigation remained closed until the 1st June, when by forming a dam of timber on the walls, two feet in height, the lock was reopened.

Notwithstanding the large body of water which passed over this lock during the twenty days it was submerged, no damage was sustained except the displacement of a few coping stones and the crabs and sheave blocks for working the gates.

NEW WORKS.

These works consist of a flat dam about 1,800 feet in length extending across the River Ottawa in the Carillon Rapids, about $\frac{1}{2}$ of a mile above the village of Carillon; a slide 600 feet long and 120 feet wide for the passage of timber &c., on the South side of the River, and a canal $\frac{1}{2}$ of a mile long with two locks on the north side.

CANAL AND LOCKS.

Operations were resumed early in July 1875, having been suspended during the winter and spring months. The upper lock pit was unwatered toward the end of July, after which the excavation of it was completed. At the close of the previous

season of 1874, most of the foundation timbers for the recesses were laid, and the mitre sills placed. All the work in this connection has now been completed, the mitre sills bolted down, segment plates laid, and the rock through the chamber levelled off to receive the side walls. Trestle work to carry travelling derricks was erected, but too late in the season for practical use. At the Canal fair progress was made in excavating the piers, building the retaining and puddle walls, the river embankment and toe crib;—of the latter 934 feet was built. No additional stone for the locks had been quarried up to the close of navigation, but during the winter a quantity of undressed stone remaining in Ross' quarry was hauled to the works and a portion of it dressed. Towards the end of May, a quarry was opened on Isle Bizard for these works, the result however was not satisfactory.

DAM AND SLIDE.

Very little permanent work has been done at the Dam. Temporary bridges were extended out from both shores over the skeleton bulkhead, but were not much used. All the cribs to complete the skeleton bulkhead foundation were framed, and two small cribs were sunk in September in the deepest portion of the north channel.

At the dam proper, about 200 feet in length of the flat dam crossing the slide, was completed except the covering, and two cribs, of the three required in the north channel, were successfully placed.

At the slide, work which had been suspended in April, was resumed about the middle of August and carried on till the 24th December. During that time, the foundation of the south pier was laid to within about 60 feet of its lower end and the north pier to within about 320 feet of the lower end; both sides as far as built, were carried above water surface and filled with boulder and field stones.

On examination made at the season of low water, the permanent works forming the sills of the slide and dam were found to have sustained no material damage by the action of water and ice during the previous winter. What effect the ice and water may have had on them during the winter of 1875-76 has not yet been ascertained.

On the completion of these works, the Chute-à-Blondeau Rapids will be flooded, and the entire fall overcome by the new locks in the canal.

GRENVILLE CANAL.

Locks Nos. 5, 6, 7 and 8, at the lower entrance, are in a dilapidated state and should be rebuilt without further delay. The repairs were confined to such works as were necessary for the maintenance of the trade, and consisted principally in rebuilding a portion of the piers and hollow quoins on the south side of Lock No. 6, and in taking down and rebuilding a portion of the chamber wall and piers on the north side of Lock No. 7, and placing two new hollow quoin copings on the south side. The walls of these Locks were pointed and the sills, gates and sluices repaired.

Only ordinary repairs were required at Lock No. 9; the gates and swing bridge were painted, and are in good working order.

At Lock No. 10, four broken valves were taken out and replaced by new ones; these gates were also painted, and every thing kept in good working order.

Ordinary repairs only were necessary at Lock No. 11 until after the opening of navigation. But on the morning of the 20th May, when the water in the River Ottawa stood on a level with the top of the coping, it was observed that the south chamber wall had been forced in a few inches at the top, a result attributable first to the action of the frost behind the walls, and secondly by drawing down the water in the lock, leaving a pressure of water under a head of twenty feet behind the walls partially broken by the frost. The injury was repaired by filling in grout and concrete behind the broken portion, and it now has every appearance of being as firm as ever.

This Canal was maintained in an efficient state during the year, the only interruption being caused by the high water in May last.

The towing paths, fences, buildings, culverts etc., received thorough general repairs, and a good deal of new fencing was erected.

During the freshet, the Ottawa water having passed over the Canal embankment below Lock No. 10, measures were taken to prevent damage at that point as well as along the whole line of bank extending to Dewar's Mill, the greater portion of which was in danger of being washed away by the flood.

These Canals known as the Carillon and Grenville Canals, were closed by ice on the 20th November 1875. The Carillon was reopened on the 1st May 1876 and the Grenville on the 8th May, but owing to the extreme height of the River Ottawa, the navigation was interrupted for a period of twenty days. The navigable season on the Carillon and Chute à Blondeau Canals consisted of 204 days, and 197 days on the Grenville.

NEW WORKS.

The work now under contract consists in widening and deepening the Canal from the Grenville entrance to Lock No. 8 at Greece's Point, a distance of 5.31 miles, and building new locks adjoining old Locks Nos. 9 10 and 11. The Locks, all of which are now completed and in use, are 200 feet long between gate quoins, 45 feet wide at bottom, and have 9 feet of water on the sills. Above the guard lock at Grenville, the bottom width of Canal to be 50 feet, and below that lock 40 feet, with suitable passing basins; the whole to have a depth of ten feet water, or one foot below tops of mitre sills.

On section No. 1, four passing basins have been excavated, which completes the number intended for this section. These basins are 600 feet long, and increase the Canal width to 80 feet at bottom. They have been located on the points of curves, and thus aid in straightening and improving the line of Canal.

The work of excavating the prism of this section to the required width and depth, is well advanced.

On section No. 2, two passing basins have been formed, one about a mile below Lock No. 10, the other half a mile above Lock No. 9, the latter however is not completed, having at present only a depth of four feet below surface water.

The deepening and widening of prism of Canal on this section has been prosecuted from Lock No. 10 downward for a length of 6,500 feet; the full depth and width have not however been obtained. Several other points on this section have also been deepened. Where the slopes are completed, dry walls have been built, and a towing path bridge built where required.

CULBUTE CANAL.

UPPER RIVER OTTAWA.

These works are situated in the Culbute or north channel of the River Ottawa at the Allumette Island, and consist of a dam 520 feet long, two combined locks each 200 feet long by 45 feet wide, with 6 feet of water on the sills, the whole being constructed of timber filled with stone.

Messrs. Wm. Davis and Sons, of Ottawa, are the Contractors.

During the year, the locks with mooring piers at each entrance, have been completed, with the exception of the top covering of three inch pine plank. The piers at the upper entrance are each 138 feet in length by 25 feet in width, with a recess for a stop gate above the wing wall of the lock. They only require face and top planking to be complete.

L'Islet River and Dam 223 feet in length is finished with the exception of the covering.

On the Flat Dam in main channel, cribwork 90 feet long by 43 feet wide, has been placed as a foundation; and about 70 feet of stringers in continuation of the same, have been bolted to the rock bottom.

The whole of these structures are ballasted with stone, and a heavy embankment, formed of the material from the excavation, placed on both sides of L'Islet Dam and wingwalls, and in rear of the lock walls.

LOCK GATES ETC :

Tenders for the construction of 3 pair of lock gates and a stop gate required for this Canal, were received on the 24th August 1875, and the work awarded to Mr. John Stewart of Ottawa, who signed the contract on the 28th September.

The stop gate was nearly finished and placed in position in January. At the close of the fiscal year, one pair of gates had been placed in position in each lock, and the third pair well advanced towards completion.

There is now every prospect of this work being fully completed this season.

I have the honor to be, Sir
Your obedient servant,

JOHN G. SIPPPELL,
Engineer in charge

F. BRAUN, Esq.
Secretary,
Public Works Department.

LACHINE CANAL.

STATEMENT of Fines and Damages, &c., collected during the Fiscal Year ended 30th June, 1876.

Date.	Name of Vessel.	Name of Owner.	Fines.	Damages.	Totals.
			\$ cts.	\$ cts.	\$ cts.
1875					
July 8	Steamer Passport.....	Rich. & O. Nav. Co.....		10 00	
31	B. J. Dufresne.....	A. Dufresne.....	20 00		
Aug. 25	Steamer Bohemian.....	Rich. & O. Nav. Co.....		8 00	
Sept. 8	Propeller "East".....	Tait & Co.....	5 00	14 00	
14	do "Prussia".....	J. Graham & Co.....		12 00	
20	Barge Confederation.....	J. Seguin.....	4 00		
Oct. 26	do Mary Lyden.....	G. Thompson.....		8 00	
Nov. 1	do Beauharnois.....	F. H. Bertrand.....	10 00		
2	Propeller "Canada".....	J. B. Fairgrieve & Co.....	10 00	10 00	
1876					
June 10	Barge Marie Joseph.....	J. Vachon.....		4 00	
16	Propeller "Celtic".....	McKay.....		8 00	
24	do "Lake Erie".....	L. R. S. S. N. Co.....	10 00		
	Wintering Vessels in Canal.....			906 25	
Totals.....			59 00	980 25	1,039 25

JOHN O'NEILL,
*Collector Canal Tolls.*COLLECTOR'S OFFICE,
MONTREAL, July, 1876.

LACHINE CANAL.

STATEMENT of Fines, Basin and Bank dues collected at Lachine, for the Fiscal Year ended 30th June, 1876.

Date.	Name of Vessel.	Name of Owner.	Amounts.	Remarks.
			\$ cts.	
1875				
Sept. 20... 1st Jul. '75 to 30th June '76.	Canal Boat.....	T. E. Bailey.....	10 00	
	Basin dues.....		264 48	
	Firewood dues.....		70 68	
	Bank dues.....		56 00	
Total.....			401 16	

JOHN DYDE,
*Collector Canal Tolls.*CANAL OFFICE,
LACHINE, 6th July, 1876.

BEAUHARNOIS CANAL.

STATEMENT of Fines and Damages collected during the Fiscal Year ended 30th June, 1876.

Date.	Name of Vessel.	Name of Owner.	Fines.	Damages.	Total.
1875.			\$ cts.	\$ cts.	\$ cts.
July 9	Schooner Grinaby	J. Norris	10 00		
9	Barge Clinton	J. Norris		30 00	
16	Steamer St. Francis.....	St. F. Navigation Co.....		18 00	
30	Barge Cleveland.....	Alfred Delisle.....		16 00	
Aug. 21	Barge Monica.....	Edward Carigher	5 00		
Sept. 2	Propeller Lake Ontario	Capt. J. Perritt	20 00		
4	do Dominion.....	Capt. McMaugh	20 00		
7	Steamer Spartan	Richelieu & O. N. Co.....	10 00		
27	Propeller Acadia.....	Capt. McAuley.....		10 00	
29	do Calabria	Capt. Zealand		10 00	
Oct. 5	do Prussia.....	J. Graham & Co		1,250 00	
Nov. 2	do Lake Erie.....	L. R. S. S. N. Co.....	20 00		
4	Barge Colborne.....	Jos. Omond.....		10 00	
1876.					
May 27	Propeller Lake Eric	Jos. Omond	10 00		
27	do do	Jos. Omond.....		60 00	
		Total	95 00	1,404 00	1,499 00

J. F. BÉIQUÉ,
Superintendent.

CANAL OFFICE,
Melocheville, July, 1876.

CHAMBLY CANAL.

STATEMENT of Fines and Wharfage, collected during the Fiscal Year ended 30th June, 1876.

Date.	Name of Vessel.	Name of Owner.	Amounts.	Remarks.
1875 and 1876...	Canal Boat		\$ cts. 10 00	
	Wharfage		5 00	
			15 00	

C. PRÉFONTAINE,
Superintendent.

CANAL OFFICE,
Chambly, July, 1876.

LACHINE CANAL.

STATEMENT showing the depth of river water on the mitre sill of Lock No. 1, at lower entrance, and Lock No. 5 at upper entrance, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lock No. 1—Lower Sill.		Lock No. 5—Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	18 10	17 9	11 3	10 5
August.....	17 11	17 3	10 5	10 1
September.....	17 3	16 6	10 1	9 7
October.....	17 6	16 6	10 4	9 5
November.....	17 7	16 5	10 4	9 4
December.....	32 10	19 2	11 2	9 4
1876				
January.....	30 0	26 5	11 7	10 2
February.....	27 7	25 10	11 5	9 8
March.....	29 7	27 2	11 8	10 1
April.....	34 2	27 7	14 8	10 10
May.....	29 1	24 5	17 3	14 6
June.....	26 10	22 9	16 2	14 0

BEAUHARNOIS CANAL.

STATEMENT showing the depth of river water on the mitre sill of Lock No. 6 at lower entrance, and Lock No. 14 at upper entrance, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lock No. 6—Lower Sill.		Lock No. 14—Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	11 1	10 4	11 10	11 9
August.....	10 4	9 11	11 9	11 5
September.....	9 11	9 6	11 9	11 2
October.....	9 10	9 6	11 10	11 0
November.....	10 3	9 10	11 7	10 10
December.....	14 6	10 3	11 10	10 7
1876				
January.....	17 0	11 6	12 0	11 4
February.....	21 6	15 10	12 4	11 5
March.....	21 6	16 0	12 1	11 1
April.....	16 0	14 6	13 9	11 8
May.....	16 8	14 6	13 9	13 2
June.....	15 5	14 0	13 7	13 0

CHAMBLY CANAL.

STATEMENT showing the depth of river water at the mitre sill of Lock No. 9 at lower entrance, and Lock No. 1 at upper entrance, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lock No. 9, Lower Sill.		Lock No. 1, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	11 11	9 6	9 10	8 3
August.....	9 6	9 2	8 7	8 2
September.....	9 5	8 6	8 7	7 4
October.....	10 6	9 1	9 6	7 5
November.....	11 6	10 0	9 8	8 7
December.....	14 0	10 0	9 3	8 4
1876.				
January.....	16 5	12 3	9 10	8 8
February.....	18 0	16 2	9 8	8 8
March.....	18 10	16 2	10 3	8 7
April.....	19 9	16 0	11 9	9 7
May.....	19 7	17 5	12 8	11 4
June.....	17 8	12 7	11 6	9 9

ST. OURS LOCK AND DAM.

STATEMENT showing the depth of river water on the mitre sills of the St. Ours Lock during the Fiscal Year ended 30th June, 1876. (From Superintendent's Returns.)

Months.	Lower Sill.		Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	10 5	9 0	9 9	8 7
August.....	9 4	8 5	8 7	8 3
September.....	10 2	7 9	8 5	7 10
October.....	9 10	8 3	9 10	8 0
November.....	10 7	8 5	9 10	8 8
December.....	11 3	9 0	9 3	8 4
1876.				
January.....	14 6	10 7	11 10	9 0
February.....	14 9	13 3	10 6	9 2
March.....	17 8	13 8	13 5	9 7
April.....	22 10½	16 0	18 5	10 10
May.....	21 2½	18 7	17 0	14 6½
June.....	19 3	14 3½	15 0	10 8

ST. ANNE'S LOCK & DAM.

STATEMENT shewing the depth of river water on the mitre sills of St. Anne's Lock during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lower Sill.		Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July	8 6	7 8	10 4	8 11
August	7 10	7 6	9 0	8 2
September	7 5	7 0	8 1	7 3
October	7 4	7 1	8 1	7 4
November	7 8	7 0	8 5	8 0
December	8 11	7 4	8 4	7 8
1876.				
January	9 2	7 9	9 0	7 7
February	9 8	7 11	9 11	8 9
March	9 8	7 11	9 11	8 9
April	12 7	8 11	14 0	9 3
May	15 10	12 6	18 2	13 11
June	14 2	11 9	16 5	12 9

CARILLON CANAL.

STATEMENT shewing the depth of river water on the mitre sill of Lock No. 1 at lower entrance and Lock No. 3 at upper entrance, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lock No. 1, Lower Sill.		Lock No. 3, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875.	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July	9 5	8 0	9 8	7 9
August	8 4	7 7	7 9	7 0
September	7 8	6 9	7 0	5 11
October	7 11	6 9	7 4	5 11
November	8 3	7 7	8 4	7 4
December	8 0	7 6	8 5	6 0
1876.				
January	9 5	7 6	10 3	6 1
February	11 0	8 10	9 0	6 3
March	10 10	9 4	8 9	6 0
April	14 9	9 2	15 6	6 4
May	19 7	14 5	22 3	15 6
June	17 6	12 9	19 4	13 6

CHUTE À BLONDEAU CANAL.

STATEMENT showing the depth of river water on the lower and upper mitre sills of Lock No. 4 at Chute à Blondeau, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns).

Months.	Lower Sill.		Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	10 9	8 7	10 7	8 5
August.....	9 4	8 5	9 2	8 3
September.....	8 3	6 10	8 0	6 7
October.....	8 6	6 4	8 4	6 2
November.....	9 0	8 2	8 10	8 0
December.....	10 0	7 10	11 6	9 0
1876				
January.....	13 0	9 10	14 0	10 9
February.....	19 9	11 9	19 4	12 6
March.....	19 6	10 6	19 0	10 0
April.....	15 0	9 6	14 6	9 5
May.....	24 0	15 3	23 9	15 6
June.....	20 7	14 5	20 8	14 4

GRENVILLE CANAL.

STATEMENT showing the depth of river water on the mitre sills of Lock No. 5 at lower entrance, and Lock No. 11 at upper entrance, during the Fiscal Year ended 30th June, 1876. (From Lock Master's Returns.)

Months.	Lock No. 5—Lower Sill.		Lock No. 11—Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1875	Ft. In.	Ft. In.	Ft. In.	Ft. In.
July.....	10 8	8 8	15 4	13 3
August.....	9 0	8 0	13 6	12 6
September.....	8 4	7 0	12 3	11 1
October.....	8 5	6 10	12 11	11 1
November.....	9 6	8 5	13 3	12 7
December.....	15 0	10 0	12 4	11 3
1876				
January.....	16 6	12 0	12 10	11 9
February.....	21 0	15 0	12 6	11 6
March.....	20 0	13 0	13 9	11 4
April.....	17 0	7 0	21 3	12 9
May.....	23 7	17 0	27 11	21 9
June.....	20 3	14 6	25 3	19 9

LACHINE CANAL ENLARGEMENT.

MONTREAL DIVISION.

MONTREAL, July, 1876.

SIR,—I have the honor to report on the progress of work on the Montreal Division of the Lachine Canal Enlargement, for the fiscal year ended 30th June, 1876.

This Division consists of Sections numbers one, two, three, four, five, six and seven.

Sections Nos. 1 and 2 were let in September, 1873, and now form one contract, James Worthington & Co., Contractors.

Tenders for Section No. 3 were called for on the 23rd of September, 1875, and the contract was awarded to Messrs. McNamee, Gaherty and Frechette, of Montreal, on the 20th of November.

For the remaining Sections, tenders were received on the 21st March, 1875, and on the 6th of April the contract for No. 4 was signed by Messrs. Whitney and Dotey; and for No. 5 by Mr. Alphonse Charlebois. Nos. 6 and 7 were let together, and the contract was signed by Messrs. Wm. Davis and Sons, on the 26th of April, 1876.

SECTIONS NOS. 1 AND 2.

Section No. 1, includes the new entrance with two new locks, a new basin, bridge, abutments, weir, &c.

Section No. 2 comprises the construction of Wellington Basin, and the enlarging and deepening of Basin No. 2.

Lock No. 1.

During the summer of 1875, the pit was excavated, from a depth of eleven feet, to the depth of three feet above foundation level. Further excavation was prevented owing to the pumps not having been placed sufficiently low to take out the water. A large amount of stone has been prepared at Terrebonne, and some of the same, with a portion of the timber and plank for the foundation, have been delivered

BASIN No. 1.

This Basin is situated between locks Nos. 1 and 2. It is 540 feet in length, and 260 in mean width. The walls, on the east side and north and south ends, were carried up during the summer of 1875 to an average height of 18 feet. The work after being discontinued during winter, was resumed on the 5th day of June, and the walls before mentioned were nearly completed at the close of the fiscal year. The end walls cannot, however, be finished until the walls of Locks 1 and 2 are carried up so as to connect with them. The wall on the west side of the Basin is not commenced.

Lock No. 2.

The excavation remaining unfinished at the commencement of the fiscal year, was taken out and the foundation commenced on the 27th of July. Masonry was commenced on the 7th October, and the work continued until the 15th of November,

when, on account of the cold weather, it was closed for the season. The walls on both sides of the chamber of the lock were built up to an average height of three feet, and at the upper recess and breast wall to the height of five feet. The foundation has been put in from the head of the lock to lower end of the lower mitre sill platform.

The material in the bottom of the pit, except at the upper end, is a fine sand, and a sub-foundation of concrete from six to twenty one inches in thickness, has been put in under the foundation proper.

WELLINGTON BASIN.

The excavation of this basin, 1,250 feet in length, and 220 in breadth, is nearly completed. It has been mostly done with a steam excavator, and the material removed on large cars with an ordinary railway locomotive and deposited near the Victoria Bridge, on grounds belonging to the Grand Trunk Railway Company. A part of the work was done with men, and carts, and the material deposited in the bank around the basin.

A bank of earth in the lower end of the basin has not been removed and will remain until the dock walls and the excavation of Basin No. 2 are more nearly completed.

The dock walls on the three sides of the basin are well advanced, and coped for a distance of 930 feet. At the present rate of progress the whole wall will be completed this season, excepting where the banks cannot be removed while the water is in the canal.

The sewer connected with the work is nearly completed and the wharf will be put down as soon as the banks around the basin become sufficiently settled.

BASIN No. 2.

Work on this basin was continued by men and horses during the summer and fall of 1875. Some work was also done in the basin by the steam excavator. Dredging was also carried on in the present basin. Work was discontinued during the winter and resumed early in the spring.

Two steam dredges and an excavator are now in operation and working with effect.

SECTION No. 3.

This section extends from below Wellington Bridge to station 50, about 700 feet above St. Gabriel Lock; it is a little over three quarters of a mile in length. The works consist chiefly in the enlargement of the channel to a mean width of 200 feet and to a depth of 13 feet below the assumed water line; building piers and abutments for the Wellington street Swing Bridge; the construction of a lift lock, regulating weir, raceway, and bridge abutments; taking down the upper 13 feet, or more, of Lock No. 3, and rebuilding it with new face stone; securing the lower part of the north wall; forming a temporary regulating weir and raceway on the south side of the canal, and a dock wall on the south side and certain portions of the north side.

Excavation was commenced in this section on the north side of the canal above St. Gabriel Basins on the 3rd January and was carried on till the 1st of April, when the work was discontinued. It was resumed again in May. The Contractors are now forming a new bank on the north side giving the required width of 200 feet; and as soon as this work is done, they will commence with dredges and derricks to remove the present north bank and deepen the canal.

A quarry has been opened at Caughnawaga and a large amount of stone for lock and dock walls has been taken out. About 2,600 cubic yards of the same has been delivered on the work.

SECTION No. 4.

This section extends from station No. 50, above the head of St. Gabriel Island to station No. 88 above the Grand Trunk Railway Swing Bridge, a distance of 3,800 feet. The work consists of widening and deepening the prism of the canal; the construction of piers and abutments for a bridge at Brewster's Road and also of piers and abutments for the Grand Trunk Railway Swing Bridge, and the alterations to the Montreal Water Works culvert for passing their main pipe under the canal.

The water way is to be enlarged to a mean width of 200 feet and sunk to fully four feet below the top of the lower mitre sill of the present lock at Côte St. Paul.

Excavation for enlarging the canal was commenced on the south side, above Brewster's Bridge, on the 8th of June. The Contractors are also fitting up dredges and other plant for the vigorous prosecution of the work.

SECTION No. 5.

This Section extends from Station No. 88, above the Grand Trunk Railway Swing Bridge, to station No. 130 nearly opposite the lower factories at Côte St. Paul, a distance of 4,200 feet.

The work consists in widening and deepening the prism of the present canal, the construction of side walls, a by-wash and an inverted syphon culvert to carry the water of the River St. Pierre under the canal.

The channel is to be enlarged to a mean width of 200 feet, and sunk to a depth of four feet below the top of the lower mitre sill of the present lock at Côte St. Paul. The by-wash, culvert, etc., are to be placed sufficiently low to correspond with fifteen feet water in the reach, and fourteen feet on the mitre sills of the new lock at Côte St. Paul.

Excavation for enlarging the canal on this section was commenced on the 13th of June, on the north side of the canal, near the upper end of the section.

A large force is now employed, and there is every indication that the work will be carried on by the Contractor in the best possible manner.

SECTIONS NOS. 6 AND 7.

These two sections are let in one contract and are collectively 10,000 feet in length, and extend from Station No. 130, about 700 feet below Côte St. Paul Lock to Station No. 230.

The work consists chiefly in the enlargement of the channel above Station No. 146 to a mean width of 150 feet and to a depth of four and one fifth feet below the mitre sills of the present guard lock at Lachine, forming an inverted syphon culvert under the canal; building piers and abutments for a swing bridge at Côte St. Paul; constructing a new lift lock at the latter place; taking down the upper 13 feet of the present lock and rebuilding it to that extent with new face stone; and securing the lower part of the north wall; enlarging the channel below the lock to 200 feet mean width, etc., etc.

Excavation was commenced on this work on the 13th of June, on the north of the present canal near the lower end of section No. 6. A large force of men and horses, is now employed, and the Contractors appear determined to push forward the work as rapidly as possible.

I remain, Sir,
Respectfully,
Your obedient servant.

H. K. JOSLIN,
Resident Assistant Engineer.

J. G. SIPPPELL, Esq.,
Engineer in Charge,
Montreal.

LACHINE CANAL ENLARGEMENT.

LACHINE DIVISION.

LACHINE, 1st July, 1876.

SIR,—I have the honor to report upon the state of the works under my charge, for the year ended 30th June, 1876. They consist of Sections Nos. 8, 9, 10 and 11 of the Lachine Canal enlargement.

Previous to taking charge in February last, a part of the location of Sections 9 and 10 had been made by Mr. Joslin, and a small portion of the work cross-sectioned.

Work was commenced upon these two Sections on the 3rd February, and a small amount of excavation was done during the month: the rate of progress, however, was slow, for the force employed was small and the difficulties to contend against at that season were considerable. During the month and until the latter part of April, little was done, although the force employed was considerably increased. No material could be removed without the aid of gunpowder, which had to be used in large charges to produce any good effect. The excavation, in both sections, consisted principally of stone previously quarried and deposited in spoil; it formed excellent material for the embankment in the river. In April the frost ceased to be a serious obstacle. About the 15th blasting was abandoned on Section No. 9. The Contractors for Section No. 10, about the same time, were desirous of having the right of way obtained, to lay a track through the centre of their section.

During the month of April we were able to make considerable progress with our field work, locating and cross-sectioning.

During the month of May, the Contractors pushed on their work with vigor. On Section No. 10, however, considerable delay was occasioned by water in the pits, caused partly by the rains, but chiefly by leakage from the river, which, at its highest stage, (May 18th) rose to within three inches of the top of the coping of the guard lock at Lachine, and threatened to drown out everything. This flood was higher than any previously recorded. The Contractors had no pumps provided at the time.

During this month the location of the base lines on north bank on Section No. 8 was completed.

In June, the Contractors on Section 9 reduced their force, having taken out most of the earth excavation capable of being removed previous to unwatering the Canal. They have also taken out some material above water on the south bank, but as they are not permitted to blast, they find the operation slow and expensive work, and do not propose continuing it. They are now making preparations for drilling and are procuring derricks and the other machinery required during the winter.

On Section No. 10 the work has dragged on slowly during the month. A portion of Section No. 10 is now stripped to the rock, overlying which is a quantity of most excellent material for puddle, which has been reserved for future use.

On Section No. 11 work was commenced in June, by the delivery of timber for crib work. Dredges are expected immediately, to prepare the seat of the cribs forming the dam for a portion of this section.

Section No. 8 has been located throughout. Credit is due to the Contractors of Section No. 9 for the energy displayed by them during the winter months.

On Section No. 10 the work has been retarded by the delay in obtaining the right of way, the Contractors having been unable to lay down the track required

throughout the whole section. The haul is long, and at times the state of the roads, especially on the embankment has been such that they have been compelled to stop work. On the other hand I see no preparations made by them for laying a track, nor have they, as yet, provided pumps.

I am, Sir,
Your obedient Servant,

H. H. KILLALY,
Resident Assistant Engineer

JOHN G. SIPPELL, Esq.,
Engineer in Charge,
Montreal.

ST. ANNE'S WORKS.

ST. ANNE'S, 30th June, 1876.

SIR,—The past year was on the whole a favorable one for the prosecution of these works; the weather was generally fair. A new pump had been set up to replace the pump, broken the previous winter, and everything at the outset was in a condition to promise rapid progress; several circumstances nevertheless combined to make the result less satisfactory than was anticipated, the principal of which was the frequent deficiency in force employed. Wages ruled low, but though the Contractor offered one dollar per day, the men demanded \$1.25 and partial strikes occurred at critical times. The work also would have been fulfilled by the use of the steam drill, one of which arrived at the end of the season, and worked but two weeks in a highly satisfactory manner.

The upper layers of rock, quarried so readily by hand, that the Contractor inferred the character of the whole excavation from this work. He was gradually undeceived by the increasing difficulty and slowness of hand drilling, but not sufficiently early to change the result of a comparatively meagre total of excavation. The Contractor, Mr. Becker, is now satisfied of the economy of these machines, and will commence next season with two of them, with possibly a third added later.

Excavation began on the 6th July, and continued to the 17th of November, when the works became blocked with floating ice. Leakage from the coffer dams was small, the only trouble from that source occurring in the early part of October, from the attacks of our old enemies the muskrats. The large fifteen inch pump, damaged last year, was raised and repaired; the buckets were found to be broken, and the bottom of the shell entirely gone. It has not been used since except experimentally, the small six inch pump being found sufficient to keep the bottom free, though the area drained was 120 feet wide by over 600 feet long. The work on the bottom began with 7 carts increased to 9 at the beginning of August, and to 13 or 14 on the opening of Section No. 2 on the 25th August, reduced in last week of September to 9 and increased again on the 1st October to 11, remaining at that figure to the close of the season. An average of four men per cart will represent the force in this department, including quarry and bank men; but not those employed in clay-pit, scow men and puddlers.

There is but little to remark regarding the cribbing and superstructure, as they suffered from no difficulties or delays except when the men were called off temporarily to take the place of strikers; these occasions, however, were rare, and this part of the work was carried on satisfactorily in advance of the rest.

Navigation closed rapidly, and less than a week elapsed from the stoppage of the excavation until the ice had taken across the river. But though the winter set in early, the numerous thaws and snowfalls caused great irregularity in the thickness of the ice, teams breaking through in mid-winter in some places, while in others there were over three feet of thickness. Between the piers there was nearly four feet in depth of ice, which in the early rise of the spring flood lifted the unfinished portions of the piers, and threatened serious damage, but this damage was happily averted to a great extent. During the winter the crib constituting the fly wing at the upper end of the west pier, was built and sunk, also a crib in the upper wing of the east pier; this work was all that could be safely undertaken from the treacherous nature of the ice. In fact the last crib was unfinished when the ice broke round it again, and some days elapsed before it became firm. During the winter, the soundings necessary accurately to determine dredging were completed.

Early in April the water began to rise, and, on the 15th, the upper ends of the piers were found to be lifted and canted; means were taken to hold them down by passing chains around the ties, but without effect, separation having occurred below the top of the stone filling. We are now removing the stone by diver, and the crib work as the water falls is settling again into place.

On 1st May, the lake ice carried away part of the unfinished upper end of the east pier, and on the 5th a raft, which a steamer was attempting to move, was carried upon the end of the west pier, mounting it and slightly displacing it laterally, besides tearing away part of the top course. The water rose steadily, and on the 1st of May, it stood level with the top of the lock coping. On the 16th, it reached its highest point at 18 inches above, equal to 15 feet 10 inches on the lower sill and 18 feet 2 inches on the upper, about three feet higher than the highest point of last year. The height of this flood is described as being unprecedented. Possibly had such a level been anticipated, the height of the lock walls would have been increased. This consideration suggests that the walls of the new lock should be raised two feet higher than the level of the coping of the present lock. Both ends of the village were inundated, and traffic was stopped on the front street, and the sidewalks carried away, the top of the long pier below the lock also was broken up along its entire length. The water has not since gone down at a greater rate than usual, at this period of the year being three feet higher than on the 30th June 1875; we must therefore look for a later commencement of the excavation, and we must trust to improved appliances and to increased force to make up for the disadvantages under which we labor, for 18 inches is yet needed before the work can be unwatered.

Only from three to four cribs remain to be built in the wings; with the superstructure of about 1,000 feet in length by five or six feet in height, with the sheeting and puddle bank of the third, and last section.

I have the honor to be, Sir,
Your obedient servant,

GEORGE HENSHAW,
Resident Assistant Engineer.

JOHN G. SIPPPELL, Esq.,
Engineer in Charge.

CARILLON CANAL DAM AND SLIDE.

ENGINEER'S OFFICE,
CARILLON, July, 1876.

SIR,—I have the honor to report as follows on the progress of work by Messrs. R. P. Cooke and Co., contractors for the "Carillon Canal Dam and Slide" during the year ended 30th June, 1876.

In addition to timber delivered at the end of previous year some 106,000 cubic feet was delivered between 1st July and 1st November. Also during the same time about 1,350 barrels of hydraulic cement, and a quantity of rubble or backing stone and iron.

CANAL AND LOCKS.

Operations were resumed early in July, and continued until stopped by frost.

The unwatering of the upper lock-pit was accomplished toward the end of July, when the excavation was completed. Most of the timbering of the recesses had been done the year before, this work was now completed, planked, concreted, and the mitre sills and segment plates put down, and the rock through the chamber levelled to receive the masonry.

Trestle work, to carry travelling derricks for laying the stone, was then erected, but by the time that was finished, it was so late in the fall that none of the masonry could be laid.

At the Canal, work was carried on as late as possible: at the rock excavation in bottom, the rubble retaining wall laid in cement, the puddle wall, the embankment, and cribwork along the toe of it. Of the latter 934 feet in length was built. Some difficulty was experienced in clearing the site of retaining wall to get a good foundation.

All the above works were substantially executed.

No quarrying of stone for locks was done during the year, but at the end of last month a quarry for that purpose was being opened on Isle Bizard. About 160 cubic yards of stone, remaining over from the "Ross Quarry," was, during the winter, hauled to the works, and the part of it fit for face stone dressed.

In spring the coffer dam protecting the upper end of Canal had to be raised some four feet to guard against high water.

Nothing further was done up to the close of the year.

DAM.

About the middle of July the work of running out a bridge over the previously built "Skeleton Bulkhead" above site of permanent dam, was begun, and carried on, but not continuously, from both sides of the river, during the winter.

That on the northern side was scarcely used before it had to be removed in the fall. That on the southern side was only utilized as a means of access to the new slide piers.

All the cribs to complete the "Skeleton Bulkhead" foundation were framed, but the only work put in place in connection with it, which really advances the work, was two small cribs sunk to fill vacant places in the north channel. This work was done in September.

At the dam proper the only permanent work done consisted in carrying up the superstructure, or flat dam crossing the slide, a length of 200 feet, which was com-

pleted with the exception of the covering, and placing two of the three cribs required to fill the north channel. The latter was not done till late in the fall. Two more cribs, and bents for one water gate were framed on shore, but not put in place.

The winter and high water prevented anything more being done up to this time.

SLIDE.

A temporary bridge, sufficiently high to allow rafts to pass under it, was built across the old slide, to get out material to the new work. Work at the new slide piers suspended since the previous April was resumed about the middle of August and carried on till 24th December. By that time the foundation of the south pier had been laid except about 50 feet of lower end, and of the north pier except about 320 feet at the lower end, both being carried above water. Work was again begun at these piers early in March, and continued vigorously till the middle of April, when it was stopped by the breaking up of the ice and the rise in the water. A good spring's work was done there, well done and substantially built. The piers were filled principally with boulder stone. High water has prevented work there since.

A large quantity of material, viz: timber, plank, stone and iron is on hand besides steam engines, pumps, derricks, scows and other plant.

When the water became sufficiently low last fall to examine the permanent works of the slide and foundations of the dam proper, it was found that they had sustained no damage of any consequence the winter before, but they were slightly injured in July by the passage of timber over them. The water is yet too high to ascertain whether or not any damage has been done by the ice of last winter and early spring to any of the works, but as the water was high during that time, it is probable that they have been saved from injury.

In the month of May the river rose to a height heretofore unknown, when some of the unfinished embankment was washed away, and although the Contractors took every precaution, some of their timber "boomed" above the Carillon rapids, was carried off. A pile of sand delivered for retaining wall was also lost.

Although the working season 1875 was not nearly as favorable as that of 1874, and some former seasons, in my judgment more work might have been done in the bed of the river than was performed.

I have the honor to be, Sir,
Your obedient servant,

ANDREW BELL,
Resident Assistant Engineer.

JOHN G. SIPPELL, Esq.,
Engineer in Charge.

GRENVILLE CANAL ENLARGEMENT.

ENGINEER'S OFFICE, July, 1876.

SIR,—I have the honor to report on the progress of works on this Canal during the fiscal year ended 30th June, 1876, under contract with Mr. James Goodwin.

The works executed consisted almost exclusively in excavation and building of dry walls for the protection of banks.

SECTION No. 1.

From the entrance of Canal at Grenville to Lock No. 10.

Above the guard lock nothing has been done. Below guard lock, on this section, three meeting basins 80 feet wide in bottom and about 600 feet long have been excavated. The first at the foot of the guard lock; the second at the first bend half a mile below; and the third at the "deep cut" bend about one mile below the same lock. These three meeting basins with the one excavated previously at the head of Lock No. 10 complete the series projected for Section No. 1. The sites for these basins were selected so as to cut off points in curves and thereby straighten the canal. The banks being 20 to 30 feet high, these works involved a large amount of excavation. The portion above water level in the canal, was executed last summer without interfering with the navigation.

Besides the excavation of these basins, a considerable amount of work was done towards deepening and widening this section to its contemplated dimensions. It was anticipated that this section, below guard lock, would have been completed this year, but the unfavorable weather at the close of the winter upset all our calculations, and there remains to be done about a month's work with 300 laborers to complete the deepening and widening.

SECTION No. 2.

From Lock No. 10 to Lock No. 9 at Stonefield.

One meeting basin has been excavated below Dewar's Mill, one mile below Lock No. 10, by straightening a curve in canal. The banks being low at this point the amount of excavation required was comparatively small. A second meeting basin was partly completed, half a mile above Lock No. 9. This basin was excavated to about four feet below surface water in canal; the greater portion of this work being executed in summer.

At these two basins, substantial dry boulder walls were built to protect the new tow-path banks.

More meeting basins will probably be required on this section, but no decision has been made regarding them.

As the whole canal may at a future date, be widened to 80 feet at bottom, the location of these basins, as well as those on Section No. 1, was made so as to correspond with the probable future enlargement.

The deepening and widening of the prism of canal on this section has been executed from Lock No. 10 to 900 feet below Dewar's Mill, say 6,500 feet in length. This work, however, is not altogether completed, the earth banks not having a sufficient slope, and about 600 feet in length below Lock No. 10 being deficient in depth and width. Navigation opened in spring before this work could be completed.

Besides these works, portions of this section have been improved where barges and steamboats would strike the bottom.

A temporary bridge with dry-stone abutment was built on the tow path across Dewar's Mill Stream.

A new waste weir has to be built on this section at its lower end. A surface weir will also be required opposite Dewar's Mill Stream.

SECTION No. 3.

From Lock No. 9 to Lock No. 8.

Nothing has been done on this section during last season. In its present state it is excavated to its proper dimensions some 400 feet below Lock No. 9.

I have the honor to be, Sir,
Your obedient servant,

E. H. PARENT,
Resident Assistant Engineer.

JOHN G. SIPPPELL, Esq.,
Engineer in Charge.

WORKS AT L'ISLET RAPIDS.

ENGINEER'S OFFICE,
CHICHESTER, 30th June, 1876.

SIR,—I have the honor to report on the progress of the works at L'Islet Rapids, Culbute Canal, for the past twelve months.

The construction of two combined locks of an aggregate length of 508 feet has been completed with the exception of deck or top covering of plank.

Lower Lock No. 1 is 265 feet in length; walls 21 feet 10 inches in height, 15 feet in width.

Upper Lock No. 2 is 243 feet in length; walls 24 feet in height and of the width of No. 1.

The inner faces and floors, breastwall and recesses of both locks are covered with one tier of three inch and one tier of two inch pine plank.

Lock No. 1 has one mitre sill and one breast wall. Lock No. 2 has two mitre sills and one breast wall.

Water was let into Lock No. 1 on 17th November, 1875.

On the south side of lower entrance a mooring pier 202 feet in length, 30 feet in width, from 22 to 34 ft. in height, has been completed except about seventy feet of face sheeting.

On north side a pier 142 feet in length, 22 in height and 25 wide, requires only top covering to be completed.

There are two piers at the upper entrance, each 138 feet in length, 20 feet to 24 feet in height, and 25 feet in width, with recess for a stop or rising gate. Both require face and top planking to be complete; all the piers are built as prolongations of lock walls, but independently; they are not built into the structure of the locks.

L'Islet Dam, 223 feet in length, 18 feet in width and 20 ft. to 24 ft. in height, requires top covering to be completed.

Wing wall to head of upper lock on north side is 8 feet in length, 16 in height at upper and 24 at lower end, 18 feet wide and wants deck planking.

Both these structures are built into head of locks.

Three cribs having an aggregate length of 90 feet and a width of 43 feet, with a maximum depth of 11 feet, have been placed in main channel as a foundation for flat dam.

About 70 feet of stringers rock bolted, has been laid on submerged rocks in continuation of foundation.

All these structures have been rock bolted where requisite; ballasted with stone; front and back of L'Islet Dam, wing wall and back of lock walls on both sides of locks have been covered with heavy embankments.

One pair of gates 20 ft. 10 in. high has been placed in lower lock, and one pair of same 23 ft. high in upper lock, the third pair are in process of construction.

A stop or rising gate, 48 ft. 6 in. in length, 15 ft. in height, has been placed in recess outside upper breast wall; these structures require some mounting and gear to be complete.

This year has been marked by the highest water heretofore known on the River Ottawa. It stood 20 ft. 10½ in., above lower mitre sill on 17th May last, on 18th May 1875, it was 15 ft. 10 in. above the same level, that is about the average high water. The absolute rise is 15 feet above the highest known in lower reaches, and it was 3 ft. 10 in. above the highest recorded on the Upper Lakes. It is at date 13.21 feet above the sill.

I have the honor to be, Sir,

Your obedient servant,

G. H. PERRY,
Resident Assistant Engineer-

J. G. SIPPELL, Esq.,
Engineer in Charge.

CHICHESTER, 9th September, 1876.

SIR,—I have the honor to forward the enclosed letter on the state of the works on Culbute Canal, as the information it contains is valuable.

I have the honor to be, Sir,
Your obedient servant,

G. H. PERRY.

J. G. SIPPELL, Esq.,
Engineer in charge.

TEMISCAMINGUE, 16th August, 1876.

DEAR SIR,—In reply to your questions: 1st. "Has the Ottawa River at any period within record attained as great relative height as it has this year and when?" Some of the oldest residents here say that about fifty years ago the water was fully as high. I can remember the water being very nearly as high in 1849.
"2nd. To what cause should the extreme high water be referred?" By some the extreme high water is attributable to the spring thaw and north water coming at once and together; formerly the spring thaw set in some time before the north water followed. It is remarked that the water commenced falling sooner and fell more rapidly this year nearer the Height of Land.

I am, dear Sir,
Yours sincerely,

C. RANKIN.

G. H. PERRY, Esq.

APPENDIX No. 4.

CORNWALL CANAL.

CORNWALL, 3rd July, 1876.

SIR,—I have the honor to report on the Cornwall Canal for the fiscal year ended 30th June, 1876.

The Canal was kept in good working order from the 1st July 1875, to the 6th December following, when it was closed for the winter months. It was opened again on the 1st of May 1876 and has continued in good working order to the end of the year.

The repairs have been chiefly confined to the lock-gates, supply-weirs, rebuilding lower gates of guard lock, making five new lock-gate bridges, seven new knees, laying new segments in lower recess of Locks Nos. 15 and 16, raising slope-walls, opening ditches and putting up new lower gates in Lock No. 17.

The Canal closed on the 6th December, 1875 and opened for navigation on 1st May, 1876.

I have the honor to be, Sir,
Your obedient Servant,

D. A. McDONELL,
Superintendent;

F. BRAUN, Esq., Secretary
Department of Public Works,
Ottawa.

APPENDIX No. 5.

WILLIAMSBURGH CANALS.

MORRISBURGH, 11th August, 1876.

SIR,—I have the honor to report on the Williamsburgh Canals for the fiscal year ended 30th June, 1876.

Farran's Point Canal.

The lock-gates have been repaired by putting in new rollers and valves, top bars and bridge plank with two new knees, posts and braces. Four new chains and two crabs were furnished.

These repairs were completed without stoppage to the navigation.

The head pier destroyed by fire in 1874 was rebuilt during last winter. Some stone protection has been given to the banks and additional work is required—the pier at the foot calls for attention.

Rapid Plat Canal.

Since the completion of the wharf at the foot, the repairs have consisted principally in stone protection to the banks with some slight work to the locks and gates. Snubbing posts are required on the north side on Lock No. 23 and the pier at the head calls for repair.

Iroquois Junction and Galops Canal.

Temporary repairs were made on the lock-gates during the summer. The upper gates at Lock No. 25 Iroquois and lower gates at Lock No. 26 Edwardsburgh, were taken out during the winter and rebuilt. They are now in good order. The upper gates at Lock No. 27 Galops, should be taken up this winter and overhauled.

Lumber and stone were obtained for rebuilding that portion of the pier at the head of the Galops, which had been carried away, but owing to the high water the work could not be proceeded with satisfactorily. The greater portion of the timber has been applied to the construction of the piers required by the Chain Tug Service and can be replaced during the ensuing winter.

The booms and banks have been kept in good condition. The pier or wharf at Iroquois requires repair.

The high water this season requires the construction of more stone protection to the banks than is ordinarily called for.

The canals were open without interruption from the 1st May to the 2nd December 1875. They were again opened on 1st May 1876 and have continued in operation this season without stoppage.

I have the honor to be, Sir,
Your obedient Servant,

A. G. MACDONELL,
Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

 APPENDIX No. 6.

 WELLAND CANAL.

SUPERINTENDENT'S OFFICE,
ST. CATHARINES, July 18th, 1876.

SIR,—I have the honor to report on the condition and working of the Welland Canal for the year ended June 30th, 1876.

The Canal was closed on the 15th day of December, 1875, and opened on the 17th day of April 1876.

Two accidents during the year caused a suspension of navigation for a brief period. The first occurred on Saturday, the 4th day of September, 1875, when all the gates of Lock 26 were carried away by the N. T. Co.'s Propeller "Maine."

The new gates were placed in position on the following Monday, causing a delay of 48 hours.

The second occurred on the 19th day of June, 1876. The schooner "Reindeer" got her centre-board jammed in Lock 21, impeding the navigation for nearly 24 hours. No damage resulted. The water supply has been greater during the season than for the previous two years, and at the present time is 24 inches above the level of 1842 in the pond at Dunnville. This level will admit of the mills on Feeder and summit level running this season longer than usual.

The traffic through the Canal has been light. It shews, however, an improvement up to 30th June of this year over last year, there having been 250 more lockages of all kinds than for the same period of 1875.

I append a statement showing the greatest and least depth of water on mitre sills at Port Colborne and Port Dalhousie Locks in each month during the year; also a comparative statement showing the average depth for the months of June 1875 and 1876, which shews that the water has been higher this year for June by 2 feet 7 inches at Port Dalhousie, and 1 foot 8 inches at Port Colborne than for the same month in 1875.

I have collected during the year in fines and damages from the owners of vessels contravening the Canal Regulations, the sum of \$2,302.67, which I have deposited in the Imperial Bank of Canada to the credit of the Minister of Inland Revenue. I append a statement of the same.

The new works and repairs during the year are as follows :

DIVISION No. 1.

The back of West Pier at Port Dalhousie 900 feet sheet piled and sand fence 309 feet built to prevent sand from washing and drifting into Harbor.

Lock No. 1.

One new gate, double kitchen to lock tender's house, old lock house fitted up for storehouse—two water closets and fence around lot—286 pieces 5" x 8"—12 feet long and 1200 spike bolts, used in repairing floats and float bridge leading to Muir's Dry Dock

Lock No. 2.

New watch house for bridge. Approach to bridge over old canal and swing bridge, new covered ; kitchen to lock-tender's house repaired.

Lock No. 1.

One new gate put in, approach to swing bridge and floats repaired.

Lock No. 5.

Dry stone wall on tow path side extended and strengthened.

Lock No. 6.

One new gate put in.

Lock No. 7.

Office for gate yard fitted up.

Lock No. 10.

One new gate put in

Lock No. 11.

Waste weir bridged and new rack in mill race flume made.

Lock No. 14.

One new gate put in.

Lock No. 15.

New fence in front of 2 lots built—chamber to lock-tender's house finished.

Lock No. 17.

Two new gates put in. Fence front of lot made. New shoot to aqueduct 330 feet long built. Gravel scow rebuilt in gate yard. Lifting scow repaired on Dry Dock. Six new gates, high lift, built in gate yard for reserve at Allanburg and Port Robinson, and two gates now in gate yard completed.

Forty new wheel-barrows made and 24 old ones new wheeled. Blocks all repaired and new ropes for scow completed. 24 new lifting screws and 12 new drums made. 40 old lifting screws repaired. 20 scow loads of quarried stone distributed between Locks 1 and 19 in repairing banks, besides general repairs to mitre sills, fender, planking gates etc., etc.

DIVISION No 2.

Lock No. 20.

New anchor irons for foot gates.

Lock No. 23.

Retaining wall at back of lock-tenders houses built, kitchens sided, main building repaired. Waste weir repaired, crib work on tow path side repaired.

Guard Lock.

New mud sill put in, 420 feet floats at Rock Cut above lock built and placed in position.

Allanburg.

New swing bridge, heel and toe approaches and fender work built. Also new waste weir to Lake Erie level. Two signals put up and extensive repairs to lock tender's houses, one of which had become uninhabitable. New kitchens built thereto, cellars cemented and drained. Four new gates put in, the old ones having been carried away by propeller Maine, both bunting cribs repaired and raised higher.

Port Robinson.

One new swing bridge across cut built. Old bridge moved to stone abutment and repaired.

Welland.

New floating fender put down in front of swing bridge. Stationary bridge across old canal replanked and repaired.

Banks on this Division well kept up, portions faced with stone, levels cleaned out in spring, and general repairs to lock gates, mitre sills, &c.

Port Colborne Division.

Port Colborne west pier, slightly repaired, collector's house and lock mitre sills repaired, considerable repairs have been made to floats. Stone bridge has new stringers, railing and needle beams with general repairs. New ferry boat built. Wooden buoy built and placed off mouth of harbor on Rock Point, back ditch cleaned out and sides walled with stone, banks repaired, &c., &c.

Dunnville and Feeder Division at Junction.

New house and lock shanty for lock tender built, waste weir and lock cleaned out, channel above lock deepened to receive wash, culverts on Feeder cleaned, six miles of bank repaired on north side and one south side.

Stromness.

Bank and approaches to bridge faced with stone.

Port Maitland.

Two new gates put in and lock cleaned out. Contract to Stephen Haney for rebuilding west pier completed.

Dunnville.

Valve rods of waste weir repaired, Sulphur creek bridge 207 feet long new planked, new pier under east end, 30 × 20 × 8 feet built, bank above third waste weir refaced with stone. 189½ cords of stone put in below dam to prevent wash and for strengthening foundation. Some general repairs to bank.

The breach made above old weir to let off the pond (cut by some person unknown) was promptly repaired. I may add that although the dam at Mount Healy had been carried away in 1875, and not rebuilt, by which a reserve of 30,600,000 cubic feet of water usually held in reserve ceased to be available, still the water last summer was not as low by 8 inches as in previous seasons a result attributable in part to the good management and vigilance of those in charge.

The works generally are in a fair state of repair. The superstructure of west pier at Port Maitland will soon require rebuilding as it is decayed, and liable to be swept away by heavy storms.

I have the honor to be, Sir,
Your obedient servant,
E. V. BODWELL,
Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

WELLAND CANAL.

STATEMENT of fines and damages collected during the Fiscal Year, ended 30th day of June, 1876.

Name of Vessel.	Fines.	Damages.	Total.
Prop. Standley.....	20 00		
" Columbia.....	20 00		
Tug Nasmith.....	20 00		
Revenue Cutter "Ada".....	20 00		
Schooner (name unknown).....		17 00	
" C. B. Windotte.....	10 00		
" British Lion.....		25 00	
Prop. St. Albans.....	20 00		
Barge Van Allen.....		16 31	
Tug Mary.....	10 00		
Schr. T. R. Merritt.....	10 00		
Barge India.....		18 45	
Schooner Bessie Barwick.....		10 35	
Prop. Ocean.....		20 00	
Barge Lisgar.....		48 45	
Prop. Maine.....		1900 00	
" Ocean.....		43 61	
Schooner Guiding Star.....		15 50	
Prop. Argyle.....		18 00	
	130 00	2132 67	2262 67

WELLAND CANAL.

STATEMENT showing the Depth of Water on Lower Sill Lock No. 1, Welland Canal, for the Fiscal Year ended the 30th June, 1876.

Months.	Lower Sill.		Months.	Lower Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1875.	Ft. in.	Ft. in.	1876.	Ft. in.	Ft. in.
July	12 10	12 3	January	12 1	11 4
August	12 8	12 3	February	13 0	12 1
September	12 9	11 9	March	14 2	12 7
October	12 6	11 8	April	14 8	13 4
November	12 4	11 5	May	15 0	14 6
December	11 10	11 2	June	15 7	14 10
Average depth June 1875	Ft. in.				
“ “ 1876	12 5				
	15 0				

STATEMENT showing the Depth of Water on the Upper Sill of Lock 27, Welland Canal, for the Fiscal Year ended the 30th day of June, 1876.

Months.	Upper Sill.		Months.	Upper Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1875.	Ft. in.	Ft. in.	1876.	Ft. in.	Ft. in.
July	12 9	12 0	January	14 10	11 10
August	13 2	11 5	February	14 3	12 1
September	14 4	11 4	March	14 10	12 3
October	16 8	11 5	April	15 8	13 3
November	12 7	11 0	May	14 6	12 11
December	13 3	10 10	June	14 5	13 4
Average depth June 1875	Ft. in.				
“ “ 1876	12 4				
	14 0				

APPENDIX No. 7.

BURLINGTON BAY CANAL.

ST. CATHARINES, July 21st, 1876.

SIR,—I have the honor to report on Burlington Bay Canal for the year ended 30th June, 1876.

This Canal was closed on the 11th day of December, 1875, and opened on the 28th day of April, 1876.

Some repairs to the piers have been made during the year. Much of the waling, and the planking destroyed by fire has been renewed. Stone filling has been placed in the end of the north pier to replace the material washed away. Four to five courses of timber of the light house crib were relaid and additions made to the stone filling. Some repairs to the ferry scow have also been made.

The piers are in a bad condition; in places they have settled on the inner line, and extensive repairs will soon be necessary.

I have the honor to be, Sir,
Your obedient servant,

E. V. BODWELL,
Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

 APPENDIX No. 8.

 RIDEAU NAVIGATION.

RIDEAU CANAL OFFICE,
OTTAWA, 4th Sept., 1876.

SIR,—I have the honor to report on the works under my charge for the fiscal year ended 30th June, 1876.

The principal repairs have been as follows :

Kingston Mills.

One new pair of lock gates. The superstructure of the long bridge over the By-wash, on the Kingston Road renewed, swing bridge replanked and the dam faced with stone.

Brewer's Lower Mills.

Sundry repairs to sluices, and gravel placed on embankment.

Brewer's Upper Mills.

One new set of gates.

White Fish Dam.

This dam which leaked badly was staunched with stone and gravel.

Jones' Falls.

The wing wall of lock was repaired and sundry repairs made to the sluices and bulkhead.

Davis'.

Piers have been built to protect the wing wall of the lock from injury from the barges. Some repair was made to the by-wash.

Chaffey's.

Repairs to sill of lock and bulkhead.

Newboro'.

High level bridge painted and approaches graded.

Narrows.

Swing bridge repaired.

Poonamalie.

New pair of gates put in, sluices refaced.

Smith's Falls (detached).

One new pair of gates put in.

Eagle Lake Dam.

This dam which was partially burnt was repaired and made good.

Smith's Falls (combined).

Swing bridge repaired.

Old Slys.

Small repairs to sluices and gates.

Edmonds.

New pair of gates put in.

Maitland.

New pair of gates put in.

Merrickville.

Oak timber provided for renewing the swing bridge.

Clowes.

Gravel placed on dam and some slight repairs to lock gates.

Nicholson's.

Oak timber delivered for renewing swing bridge.

Burritt's Rapids.

Repairs to bulkhead and swing bridge.

Beckett's

Long bridge replanked.

Long Island.

Small repairs to sluices.

Black Rapids.

By-wash repaired and new sill put in.

Hogsback.

Repairs done to bulkhead and flat dam. Timber delivered for one pair of gates.

Hartwell's.

Timber for one pair of gates delivered.

Mutchmor's.

Swing bridge repaired.

Ottawa.

Sundry repairs to sluices. The basin was partially cleaned this spring of the deposit brought down by the Slater Street sewer.

The works with the exception of the bulkhead at the Hogsback stood the severe spring freshet without material damage. The bulkhead at the Hogsback which holds back the Rideau River was built some fourteen years ago, it is now unsafe, and will require to be rebuilt before next spring.

The completion of the main sewer has done away with the necessity of turning the drainage into the Canal Basin as heretofore was the case.

The Basin ought now to be thoroughly cleaned out and a uniform depth of six feet obtained. The bottom is principally soft mud, consequently the cost will not be serious. This work will not only be of benefit to forwarders using the Canal, but would also tend to improve the general health of the City.

The navigation closed the 22nd November, 1875, and opened on May 6th, 1876.

I have the honor to be, Sir,
Your obedient servant,

F. A. WISE,
Engineer and Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works.

APPENDIX No. 9.

ST. PETER'S CANAL.

ST. JOHN, N. B., 11th October, 1876.

SIR,—I have the honor to report on the St. Peter's Canal for the fiscal year ended 30th June, 1876.

The Canal closed on the 14th December, 1875, and opened on 3rd May, 1876, having been available for traffic 225 days, or 6 days more than the previous year. During the year a quantity of earth and boulders were washed from the slopes into the Canal, and some difficulty was experienced in operating the lock-gates.

A contract having been made for the enlargement of this canal, it was closed against the passage of vessels during the month of June.

The following is a statement of the number and tonnage of vessels which passed through the Canal during the year, with the amount of tolls collected.

Month.	No. of Vessels bound North.	Tonnage.	Amount collected for Tolls.	No. of Vessels bound South.	Tonnage.	Amount collected for Tolls.
			\$ cts.			
1875.						\$ cts.
July	76	2,373	65 15	52	1,973	46 07
August	69	2,642	64 37	45	2,056	57 15
September	78	2,701	80 03	50	1,900	60 10
October	79	3,622	44 40	65	2,033	28 16
November	68	2,215	58 14	45	1,437	32 10
December	6	339	9 05	4	247	7 14
1876.						
May	9	293	10 20	7	286	6 15
June	10	333	8 11	5	234	5 12
	394	14,518	339 45	273	10,166	241 99

RECAPITULATION.

Total number of vessels.....	667
Total tonnage.....	24,684
Number of open boats.....	186
Tolls collected.....	\$581.44

I have the honor to be, Sir

Your obedient Servant,

HENRY F. PERLEY,
*Engineer in Charge.*F. BRAUN, Esq., Secretary,
Department of Public Works.

APPENDIX No. 10.

RIVER TRENT AND NEWCASTLE DISTRICT.

SLIDES, BOOMS AND NAVIGATION.

SUPERINTENDENT'S OFFICE,
PETERBORO', October 18, 1876.

SIR.—I have the honor to report on the Newcastle District Works for the fiscal year ended 30th June, 1876.

From the 1st July to the close of navigation, the water was retained as nearly as possible at a uniform level enabling steamboats to tow barges, heavily laden with freight. During the winter months, the water attained to ordinary spring height and continued to rise steadily until the 18th May, when it reached its maximum which registered 6 inches above ordinary spring height. The impetuosity with which this freshet descended, caused more than usual anxiety for the safety of the works and called for the greatest vigilance.

I have to report that the officers at the several stations creditably performed their duties.

The works suffered no damage further than ordinary wear and tear. When navigation closes instructions are issued to raise the stop logs and open the waste ways so as to allow the water means of escape and thereby lower its level in the Back Reservoirs. By this means the lakes in the spring only gradually fill up, as the surplus is constantly escaping. In consequence of the level being reduced in the winter, the freshet is so controlled in the spring as to prevent it reaching an extraordinary level unless there be a heavy fall of snow in the month of March.

The quantity of square timber and saw logs, etc. which descended the several rivers in the District, has been less in consequence of depression in the lumber trade than that of the previous year, but the quantity of sawn lumber, conveyed by barges and destined for the American Market, has not diminished to any great extent.

Lindsay.

The works at this station are in good condition. The dam was repaired early in the spring. The repairs consisted in removing a number of the posts and braces and substituting new ones, also renewing the planking. A great difficulty is encountered here, in retaining the water at a navigable height up to Port Perry, and the traffic being great, especially in sawn lumber, it is necessary to bracket the dam as early in the season as possible; if this precaution were not taken, steamboats and barges would be unable to navigate the River Scugog from Lindsay to Port Perry. After July that portion of trade of the Whitby and Port Perry Railway Company, which depends on the maintenance of this navigation, would be affected.

Fenelon Channel.

The booms and piers in this channel for the benefit of the steamboat navigation have not been damaged to any extent during the past season, they require no repairs further than the annual overhauling and fixing.

The lumberers express a wish to have the up-stream pier removed more to the southward so as to give a wider channel for the running of sawlogs and timber. The Steamboat owners and shippers have not expressed their views on the subject. There is reason to believe that a slight deviation from the existing line would not operate prejudicially on the steamboat navigation.

Bobcaygeon.

A breach was made in the lower dam by the spring freshet. It was immediately repaired in a temporary manner, the water being too high to admit of any substantial repairs being executed. Further repairs are required this autumn to ensure the safety of the dam. The upper dam requires several new half bents and portions of the breast require renewal; both dams are tight and staunch and do not admit any escape of water.

The platform of slide requires to be planked and strengthened; the top courses of wood work of canal require renewal and the bank on either side having subsided, requires refilling.

The trusses of the swing bridge across the canal, built on the Howe principle, require new upper booms, the diagonal braces renewed and the masonry of the abutment repaired. I beg leave to recommend the construction of a mechanical gear similar to that authorized at Hastings, for opening and closing the bridge. The lock gates, especially the south head gate, are not in good working order, they require to be raised and adjusted.

The repairs executed at this Station during the past year, consisted in removing obstructions at head of canal, deepening channel leading thereto, planking bridge and fixing ballast-box, constructing crabs to work lower gates of lock, placing 300 yds. gravel and brush on upper dam and fixing brackets thereon.

Buckhorn.

The dam leaks and requires to be made tight by the deposition of gravel and brush. The guide boom leading to slide requires strengthening and the piers of slide which are much decayed require renewal; the freshet injured them to an extent as to render them unsafe, and they appear unable to withstand another freshet in their present condition.

The dam has been partially planked and repaired and the waste weir made staunch and battened.

Little Lake.

The boom was repaired and new chains fixed where required. The piers were repaired where injured by the ice shove.

Whitlaw's Rapids.

The cross dam requires planking and the guide boom leading to canal increased in length by 50 feet. The lock chamber requires to be cleaned out and the walls pointed with Portland cement.

The repairs executed, consisted in repairing the sluices and heel posts of head gates of lock, planking the wing dam and repairing a portion of the apron carried away in the spring; erecting crabs for opening and closing tail gates of lock, and removing obstructions from entrance to canal. The steamboat owners and shippers complain of the obstructions in the river between this station and Hastings at the points known as "Yankee Bonnett" and "Dangerfield." They consist of a number of boulders extending across the river and forming a shoal. It was the general belief that the bed of the river at these points was flat rock, but from a recent survey I

found it was composed of a clay formation. Consequently the channel can be deepened at less expenditure than has hitherto been supposed.

Hastings.

The lock gates require a thorough overhauling and fixing. The swing bridge recently constructed across the lock is a solid substantial structure and works with ease. With care on the part of the lock master it will last for many years.

The apron of the dam has been partly renewed and the lock gates have undergone some slight repairs.

As the dam at this station retains the water at a navigable height in Rice Lake, and is the means also of maintaining the navigation of the River Otonabee, on which the shoals alluded to occur, it is of great importance that all possible means be taken to retain sufficient water during the season of low water. Several attempts have been made by those interested in the running of timber to draw off water when not required and cause waste. I consider it my duty and in the interests of the navigation to resist these attempts.

If the water be drawn down in a season of low water the trade of the Cobourg and Marmora Mining Company and that between Peterborough and Hastings would be stopped.

Heeley's Falls.

The dam has been injured in the spring by Messrs. Gilmour & Co's saw logs which broke loose from their moorings immediately after the breaking up of the ice and were driven by the freshet *en masse* over the dam. The injury consists of a great portion of the apron being carried away, and the pier at the apex being damaged to such an extent as to make it unsafe. The damage should be repaired this fall to ensure the safety of the dam. The repairs executed during the past year consisted in gravelling, tightening, planking and repairing apron of south half of dam.

Middle Falls.

The works at this station are maintained by a Committee of Lumbermen who are authorized to collect tolls on the several descriptions of timber descending the river and to expend the same in keeping the works in good repair.

Chisholm Rapids.

The slides and booms at this station are also maintained by the "Committee of Lumbermen." The lock is not used, the dam is in fair repair.

I have the honor to be, Sir,
Your obedient Servant,

THOMAS D. BELCHER,
Engineer Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works.

APPENDIX No. II.

SLIDES AND BOOMS.—OTTAWA DISTRICT.

RIVER OTTAWA WORKS.

SUPERINTENDENT'S OFFICE,
OTTAWA, 11th October, 1876.

SIR,—I have the honor to report on the state of the works under my charge for the fiscal year 1876.

During the fall of 1875 the timber and logs arrived at their respective destinations at as early dates as usual. Repairs were made at Joachim, Calumet, Mountain, Chats, Hull, Chaudière, Carillon and Sault au Recollet Stations on the main river, and on the tributaries as follow: Dumoine, Petewawa, Black River, Coulonge, Madawaska and Gatineau.

The great volume of water of the spring freshets of 1876 injured the foundations of the Calumet and Mountain slides and other works of similar age; but no serious delay was experienced in consequence.

I am informed that these works have passed through no such ordeal since their construction, and taking all the facts into consideration, there is no ground for dissatisfaction. In the experience of the oldest lumbermen, no greater difference of level between high and low water has been observed than that of this year. At the foot of the Chaudière, the records show $23\frac{1}{2}$ feet.

In the spring, the necessary precautions were taken both by night and day, to save such important structures as the Union Suspension Bridge and the Chaudière Slides and their dependencies, and not without the desired effect. Indeed it seemed from time to time that the dams constructed to furnish water power to the lessees were in danger of being carried away. Through bracing, and loading material on the works, it was found practicable to meet the emergency. Extra chains and ropes were despatched to the outlying stations where danger was anticipated, and their use at the proper time saved several of the booms from serious damage. The Carillon dams were damaged this spring to a greater extent than in any other year since their construction. For a distance of some 800 feet, the side of the slide to the foundation was carried away. The construction of the new dam and slide in connection with the Carillon Canal will render the maintenance of the existing works no longer necessary.

Some of the support piers of the Sault au Recollet boom, as well as certain piers at the Portage du Fort slide and Grassy Bay boom on the River Madawaska, were considerably damaged by the ice in the spring. Nevertheless but little inconvenience attended the passage of any description of timber for the period covered by this report; and it is gratifying to know that the obstructions to navigation and the breakages of booms on the Gatineau, of late years of frequent occurrence, have not recently given cause for complaint.

A quantity of rock has been removed from the steamboat channel at the Chenaux Rapids, work which in connection with that of the previous year has improved the navigation.

In accordance with my instructions I have made a close survey of the Government reserves to show the encroachments on property connected with the works under my charge.

For many years, the deposit of saw-mill refuse in the Ottawa and its tributaries has been detrimental to navigation and other interests, and I feel it my duty to draw attention to the subject.

In view of the commercial depression which has lately been experienced, the statement which I submit of the business of the season of 1875, may not be considered discouraging.

Through Chaudière Slides (Ottawa) :—

	<i>Cribs.</i>	<i>Pieces.</i>
Square timber.....	9,524	224,474
Flatted do	355	7,453
Deal.....	168	....
Sawed dimension.....	37	....
Spars	8	166
Round Cedars.....	22	792
Hop poles.....	31	....
Total.....	10,145	232,885

North Chaudière Slide (Hull.)

	<i>Pieces.</i>
Saw-logs.....	313,462
Flatted timber.....	9,557
Total.....	323,019

Gatineau Boom.

	<i>Pieces.</i>
Saw-logs	375,959
Square timber.....	4,468
Flatted do	4,190
Round Cedars.....	8,719
Total.....	393,336

The Slide and Boom revenue accrued during the fiscal year ended 30th June 1876 was \$84,399.38.

I have the honor to be, Sir,
Your most obedient servant,

GEO. P. BROPHY.
Engineer and Superintendent.
River Ottawa Works.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

APPENDIX No. 12.

SLIDES AND BOOMS.—ST. MAURICE DISTRICT.

SUPERINTENDENT'S OFFICE,
ST. MAURICE WORKS,

THREE RIVERS, 14th October, 1876.

SIR,—I have the honor to report on the St. Maurice Works for the fiscal year ended 30th June, 1876.

STAFF AND WORKING EXPENSES.

The cost of staff and working expenses has been \$17,660.85 or \$715.85 more than last year. Many accounts unsettled by Mr. Symmes have been paid during the last fiscal year and to this fact must be attributed the increase in the expenses.

The following table shows the expenses incurred at the different stations :

Office.....	\$2,440 26
Station No. 1.—Mouth of the River.....	6,540 55
“ 3.—Shawinigan	4,237 53
“ 4.—Grand'Mère.....	1,697 74
“ 5.—La Tuque.....	2,104 26
“ 6.—Chute des Iroquois.....	640 50

CONSTRUCTION.

Amount authorized for the construction :

7th May, 1875.....	\$10,000 90
Total expenditure.....	7,864 78

Station No. 1.—Entrance of the River.

Two cribs 35 feet by 40 ft. deep numbered 7 and 8. ,
5,016 lbs. iron.
617 yards of stone.

Station No. 3.—Shawinigan.

Two cribs 35 feet by 34 high.
1,150 yards of stone.
One crib 32 ft by 34 ft.
4 toises of stone at the foot of each crib.

Station No. 4.—Grand'Mère.

1,100 feet boomage.
1,440 feet of lumber 8" x 8" for two coffer-dams.
2 anchors.

Station No. 6.—Chute des Iroquois.

One dam 36 ft. long by 12 ft. high.
One wharf 150 ft. long by 6 ft. high.

REPAIRS.

The amount authorized for repairs.

7th July, 1875.....	\$8,000 00
Expenditure.....	5,322 16

Station No. 1.—Entrance of the River.

5 wharves repaired, numbered Nos. 1, 2, 28, 36 and 41.
3 booms repaired.
1,839 lbs. of iron.
54 toises of stone.

Station No. 3.—Shawinigan.

One small dam repaired at the head of the stream.
400 feet of lumber on the sides of slide.
Dam repaired at the head of stream.
Replaced 4 sides 30 feet 12 x 12.
25 feet of sheeting repaired at the wharf of the Grand Remou.
2,512 lbs. iron.

Station No. 5.—La Tuque.

403 feet boomage repaired.
2,000 lbs. of boom chain.
2,836 lbs. of iron.
14 pièces of boomage repaired.
To work 3,780 lbs. iron.

Station No. 6.—Chutes des Iroquois.

Taking down one dam 40 ft. long.
Raising one dam 100 ft. long 3 feet.
Wharf repaired.
600 feet of boomage repaired.

About 300,000 pieces of timber came down the River St. Maurice, last year. Repairs and improvements are necessary at different stations on the River. At Shawinigan especially, the boomages on the shoal are in a bad condition and I beg here to recommend that timber be prepared this winter to make the necessary repairs.

Last spring owing to the height of water and the timber coming down the river in great quantity, the boomage of La Tuque was broken: the only accident of importance on the river during last year.

I have the honor to be, Sir,
Your obedient servant,

JOHN BOURGEOIS.
Superintendent.

F. BRAUN, Esq, Secretary,
Public Works Department.

APPENDIX No. 13.

SLIDES—SAGUENAY DISTRICT.

SAGUENAY, 1st July, 1876.

SIR,—I have the honor to report on the works under my charge for the fiscal year ended 30th June, 1876.

The sum of \$4019.90 has been expended on repairs.

The freshets caused much damage. The dam at the mouth of Lake St. John has been swept away with a portion of the boom. 1800 feet of the slide, as well as the sluice leading thereto, two posts and a boom were carried away by the ice and the drifts.

The other works escaped injury.

I have the honor to be, Sir,
Your obedient servant,

D. BOULANGER,
Superintendent.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

APPENDIX No. 14.

HARBORS, ST. LAWRENCE AND WESTERN LAKES.

OTTAWA, 24th October, 1876.

SIR,—I have the honor to report upon the harbor works and surveys of the last fiscal year.

RIVER ST. LAWRENCE.

Quarantine Station, Grosse Isle.

This Island, 30 miles below Quebec, is mid-distant in the River, at this point 9 miles wide.

A contract was entered into in September 1875 for the repair of the south western pier, 345 feet long and 48 feet wide. Completed in 1848, much of the superstructure was found to be decayed. It was determined to remove 6 courses and restore it to this extent. It has, however, been found expedient to remove 7 courses of the superstructure. The work was satisfactorily completed towards the end of June. Some additional stone filling is however needed to ensure the safety of the structure. The cost of this work is estimated at \$400. Authority has been given to expend this sum in stone filling, and arrangements have been made for the immediate commencement of the work.

Instructions have been given for the survey and examination of the eastern Pier.

River Blanche.

River Blanche is situated between the Rivers Tortigoux and Matane, about 26 miles east of the River Metis. The work consists of a mooring crib 70' x 30' at base, battering to 60' x 24' at top, the total height from the base to the summit being 18 feet. This work is now in course of construction and is being performed by time work under Mr. Kilganan of my staff, who is carrying on the work with much ability and judgment under somewhat trying circumstances. It will be completed by the end of August.

River du Loup.

An examination has been made of this pier situated on the south shore of the St. Lawrence, 108 miles below Quebec, in order to determine what amount of the appropriation voted at the last session of Parliament for the improvement of piers, Lower St. Lawrence, should be expended at this place.

River Ouelle.

This pier is situated on the south shore of the St. Lawrence, 75 miles below Quebec and 6 miles from the village of that name.

A Parliamentary appropriation having been made at the last session of Parliament for the Lower St. Lawrence Piers, this pier has been examined with a view of determining what amount is required to improve it.

L'Islet.

This pier on the south shore of the St. Lawrence, 46 $\frac{3}{4}$ miles below Quebec, requiring repair, a survey was made of it in order to estimate what portion of the appropriation for the piers on the Lower St. Lawrence should be expended here.

Berthier.

An examination has been made of the pier on the south shore of the St. Lawrence, 24 $\frac{1}{2}$ miles below Quebec, to determine the cost of repairing it, for which a sum of money was voted at the last session of Parliament to be employed in improving the piers on the Lower St. Lawrence.

The work in the province of Quebec, is being carried on under the superintendence of my assistant Mr. Alan Macdougall.

LAKE ONTARIO.

Kingston.

Operations were continued until the close of the season of 1875 for the purpose of removing the obstructions on the Carruther's shoal, to obtain 13 feet at the lowest stage of water. 2,696 yards were removed during the season of 1875. Though the above depth was not fully obtained, work was not resumed in the season of 1876. Much of the rock was quarried under water by divers and lifted; where necessary nitro-glycerine was used. The amount expended in 1876 was \$6,267.14. When it is decided to resume work, the operations can be at once recommenced, as the mode of carrying it on has been worked out and is well understood.

River Napanee.

This river discharges into the Bay of Quinté above Kingston. \$7,500 appropriated by Parliament, was supplemented by \$5,000, paid by the Counties of Lennox and Addington and the town of Napanee. The river was very carefully surveyed throughout previous to the operations being determined; hence the dredge was placed only at work in accordance with the principle laid down of obtaining a channel 50 feet wide, and cleaning out the Harbor to the Diamond Mill to the depth of 8 feet. The work was commenced on the 16th June and continued till the 9th October 1875. It was efficiently performed by the Contractor Mr. Daly.

As differences of nomenclature have arisen with regard to the shoals, it is deemed expedient to give a list of them as laid down by the Department, and accepted by the Municipality.

They are as follows:

Daly's Bar,	From Stevenson's Dock, Campbell's
Middle Ground,	Rock, to the Harbor,
McGriens Point,	Harbor
Carscallen Shoal,	From Bridge to Diamond Mill.
Liverpool Bar,	
Beards Point.	

The proposed winding basin has not been constructed. The dredging in the Middle Ground was also left partially unfinished.

Trenton.

Trenton is situated at the head of the Bay of Quinté, 60 miles from Kingston and 12 above Belleville. These waters were thoroughly surveyed in the season of 1875. The village is partly in the East Riding of Northumberland and partly in

Hastings, being built on both sides of the River Trent, the boundary between the two counties. The chief trade is in grain and lumber. Messrs. Gilmour have extensive saw mills here and there are two large steam elevators for grain on the west side of the river from which in the season as much as 10,000 bushels of grain are shipped in a day, generally to Oswego or Cleveland. Vessels requiring 10 feet of water can load at the saw mills, but at the elevators there is but a depth of 7 ft. of water to within 50 ft. of the wharves. The channel also leading to deep water requires improvement. It is at present narrow and indirect and without buoys to guide vessels in their course; a channel 200 ft. wide with a depth of 10 ft. is required. A channel 50 ft. wide is also required to enable vessels to approach the western wharves, and to obtain this channel some excavation in rock and earth is required. A shoal at Nigger Island, 4 miles east of Trenton, was found 500 ft. long, 200 feet wide with a depth of 6 to 8 ft. of water. To the south, however, a good channel 500 ft. wide at its narrowest part was found, but it has never been buoyed out. The necessity of buoying out these channels should be understood by the inhabitants of Trenton.

Cobourg.

Is situated on Lake Ontario, 72 miles east of Toronto. The improvements consist in a pier 30 ft. wide, continued on the line of Hibernia Street. Owing to the failure of the first Contractors, it was not until May, 1875, that the second Contractors commenced to place the work in position. At the close of the season of 1875, 32 cribs had been sunk. Work was recommenced at the opening of this season, but, owing to the extreme height of the water, the operations have been somewhat impeded, but arrangements have been made by the Contractors for sinking the whole of the cribs this year. Much of the superstructure was constructed at the close of the fiscal year, and it is anticipated that the work will be completed this season. The main difficulties have, been all got over, and all that is required is ordinary energy and attention with fidelity to the contract to bring the work to a satisfactory conclusion.

Port Hope.

This harbor is situated 7 miles to the west of Cobourg. This work was resumed at the opening of the season of 1875 and was completed in the middle of September. The improvements consist of the prolongation of the two piers: the west for a length of 150 ft. on a width of 30 ft., the east pier for a length of 120 ft. on a width of 40 ft. Mariners report that this improvement has extended a sensibly beneficial effect to the Harbor. During the gales of last fall, both these lengths of cribbing sank, although seats in each case were dredged out to obtain a good foundation. The sum of \$357.85 was expended in keeping them above water, so that they could be dealt with in the spring; the sinkage, however, still continued, there being evidently a vein of quick sand at this spot. During the winds of early spring they still continued to go down. As there was no appropriation for their restoration to the required level, the Harbor Commissioners undertook the work, and these piers have been brought up to the original level by them. This matter has been brought under the notice of the Department. The piers now appear to have obtained a firm seat, but from the nature of the soil at this point, any prolongation of them may be anticipated to show the same result. There appears to the writer no other alternative in such a case, than to trust to the foundation finding its resting place, and to raise the pier to the required level as it goes down.

Port Darlington.

Is about 40 miles east of Toronto on Lake Ontario. This Harbor has been dredged out to a depth of 10 feet. Work was commenced on 9th Sept. and continued

till 27th Nov. 1875. It was recommenced on the 24th May and completed by the 1st June, 1876.

The total amount of the Parliamentary appropriation of \$5,000 was expended.

Oshawa.

4 miles east of Whitby and about 33 from Toronto.

The Parliamentary appropriation was \$5,000. In addition to this amount \$8,768 was expended by the Harbor Company, and a further sum of \$1,200 was expended on a store house, making the total expenditure \$14,968.

The channel by the wharf was dredged out on its entire length and the whole work protected by pile work. The pier was prolonged 90 ft. on a width of 60 ft. The work was brought to completion towards the end of September, 1875.

Toronto.

This Harbor was specially reported upon. [*Vide* Appendix 18, Page 86.]

Instructions have been given to commence this work.

The plant which was in use at Kingston has been transferred to Toronto, and preliminary examinations have been made by Divers of the bottom of the channel, which having been left unfinished under the previous contract with the Harbor Commissioners, is somewhat irregular, requiring the removal of ridges and other obstructions. The work will be immediately commenced.

The height of 9 feet at the Queen's wharf has been hitherto used as a datum to determine the level of water of Lake Ontario. It was established by the late Captain Hugh Richardson in 1854. Since that date on 19th March 1872 the water has fallen 16 inches lower, and therefore the known lowest water of Lake Ontario is held to be sixteen inches less than zero of the Toronto gauge. The highest water since 1854 was 47 inches above zero.

All operations on Lake Ontario are worked by this gauge, and by the aid of the telegraph the gauges of the Department in the several Harbors of Lake Ontario are established by it. There is accordingly a perfect harmony in the whole of the works undertaken on this Lake.

Oakville.

Oakville is situated on Lake Ontario, 19 miles west of Toronto.

Instructions have been given for a thorough survey of this Harbor and its approaches. The work will be performed during the present season by my assistant Mr. Hamel.

RIVER NIAGARA.

Instructions have been given for a survey of this river to determine the extent which the inlet crib of the Buffalo Water Works, placed midway in the river in the full current, interferes with the navigation.

Complaints have been made to the Department that the descent of Canadian rafts to Tonawanda is seriously affected by it.

LAKE ERIE.

Port Burwell.

This harbor lies between Rondeau and Long Point, being distant from the former 62 and from the latter 22 miles.

The cribwork on the west side was efficiently repaired from the newly formed water line of the Lake to its extremity, and this portion may now be considered to be in good condition.

The work was brought to a close by the end of November 1875.

Arrangements are made for dredging away the shoal at the entrance and for reducing the harbor to the uniform depth of 10 feet as far as the wharf a short distance above Brock Street.

The work was commenced at the last week of June and will possibly be completed by the beginning of October.

It is anticipated that a small surplus will be left which will be further expended on repairs.

Port Stanley.

110 miles above the mouth of the Welland Canal at Port Colborne.

This work consists of an addition of 2 cribs of 30 feet and 1 of 25 feet, making a total of 85 feet. It would have been completed last fall, but when the last crib was being sunk in the month of October it was driven from its position by a strong gale and much injured. Much of the stone which it contained, was deposited with the flooring which alone remained of the crib near its site.

Nothing could be done till spring, when divers were employed in relieving the flooring of this weight and so bringing it to the surface. The crib was then entirely reconstructed and resunk. The effect of this storm has been entirely removed, and the work is in progress of completion. It is anticipated it will be finished by the end of August. The Contractors Messrs Ellison & Son, have carried on this work with ability and faithfulness.

Eagle.

Is situated on the North Shore of Lake Erie in the Township of Aldborough 26 miles east of Rondeau. It is one mile distant from the Village of Eagle, itself 5 miles from Bismark a station of the Canada Southern Railway. At this point there is an open coast without the least protection, and a limited refuge can only be found for shipping by artificial means. This result would be partially obtained by prolonging the present pier 150 ft. and turning an arm to the South East. The extent of the improvement will depend on the amount available for construction.

Morpeth.

Is 10 miles to the east of Rondeau Harbor. Vessels in a south east gale opposite this point on Lake Erie have difficulty in reaching Rondeau. In this view protection given to shipping at this locality which is utterly destitute of harbors would be a benefit to navigation. There are no natural advantages in this part of Lake Erie and any protection which is obtained must be by artificial means. The Township of Howard has proposed to supplement a parliamentary vote by \$10,000.00. If the present pier was placed in good repair and prolonged 200 ft. with an arm turned in a south easterly direction to protect shipping from the south westerly gales, a limited result in the right direction would be attained.

The country is rich and the inhabitants enterprising.

An examination was also made, and established that a branch line could be constructed from the harbor to connect with the station at Ridgetown of the Canada Southern Railway.

RIVER DETROIT.

Operations were continued until the close of navigation and an ascending line on the lights on the mainland, and a descending line on the lights on Bois Blanc Island were gained with a depth of 14.5 feet at lowest water. It is a matter of

general report that since the introduction in the Upper Lake navigation of vessels of deep draught, the last season was the first when no accident was experienced at this spot. The importance of the improvement of navigation in Canadian waters has been so generally felt, that votes of thanks from the Boards of Trade of Buffalo and Detroit were given to the Honorable the Minister of Public Works for the successful result of this work, even to the limited extent to which it has been carried.

No change was made from the mode of conducting it as detailed in last year's Report. Work was continued till the 14th November. It was not resumed this season.

River Detroit Tunnel.

Instructions were given for an examination of the river above Amherstburgh to determine the practicability of a railway tunnel under the river, a work conceived in the interests of all railways having connections in the State of Michigan.

This work was carefully performed by my assistant Mr. Michaud, and is specially reported upon. [Appendix, No. 19, page 88.]

LAKE ST. CLAIR.

RIVER SYDENHAM.—*East Branch.*

This Branch extends from Wallaceburgh to Dresden.

A week's dredging was performed in July to complete the work commenced last year.

North Branch.

The North branch extends from Wallaceburgh to Wilkesport, 18 miles by the river.

Instructions have been given for a survey of this branch in order to determine the amount of dredging necessary for the improvement of navigation—viz: from Cranson's Bar to Wilkesport, a distance of 9 miles.

LAKE HURON.

Bayfield.

In the township of Stanley, is 8 miles south of Goderich on the east coast of Lake Huron.

This work has been carried on during the working season of the entire year.

In 1875, the arrangements made by the Contractor at the commencement of the season were not satisfactory. Some difficulty was experienced with regard to the dredge sent there which was insufficient. As the season advanced, more care and system was introduced, and this year work is going on satisfactorily. An efficient dredge is removing the material from the harbor, and the cribwork has been executed in a tradesmanlike way. It bids fair to be completed by the close of the season. The general extent of the harbor will have 10 ft. at lowest water, and at its immediate entrance there will then be a depth of 11' 6".

The improvement in the cribwork will consist of the extension of the north pier of 120 feet with an arm to the south west of 110 feet.

On the southern portion of the harbor a new pier is being erected. A length of 150 feet is turned in a south easterly direction towards the land, the main pier being 531 feet in length. All the new cribwork is 30 feet wide.

Some difficulty was experienced by the presence of a wreck of an old side wheel steamer on the south side of the harbor, and it was only removed with great labor and cost.

Kincardine.

The works at Kincardine, situated at the mouth of the River Penetangore, Lake Huron, 31 miles north of Goderich, consist in the lengthening of the 2 piers, each by 3 cribs turned in a direction to admit of the harbor being entered with greater ease. These cribs have been sunk and the work is well managed by the Contractors. There is every prospect that the superstructure will be finished by the end of August.

Mariners entering the harbor report that entrance to the inner waters in rough weather has been much assisted by the present work.

The inner basin also is in course of being dredged out and the general Harbor deepened.

The Government dredge arrived on the 9th July from the River Sydenham and worked till the close of the season. It recommenced on the 15th May and is now engaged in the work. It is proposed to deepen the basin throughout.

The Department has undertaken to protect the east and west sides of the basin by piling, the Corporation of Kincardine being left to perform the work on the south side. This work is now under contract, and it is anticipated it will be finished by the end of September.

GEORGIAN BAY.

Parry Sound.

Instructions have been given for a careful examination of the waters of Parry Sound.

RIVER ST. MARY

Neebish Rapids

These rapids are met in the River St. Mary about halfway between Bruce Mines and Sault St. Mary.

Instructions have been given to remove the obstructions in this channel.

The necessary plant has been moved up with the survey tug "Trudeau," detailed to this work.

The distance of the Neebish from all supplies has rendered necessary the construction of temporary huts for the men and offices. The organization is perfected and the work will be commenced on the 1st July.

LAKE SUPERIOR.

River Kaministiquia, Thunder Bay

Instructions have been given for a survey of the River Kaministiquia from the Pacific Railway Terminus to Thunder Bay.

The river, although generally deep, is obstructed at points by shoals, and a shoal at the mouth of the river nearly $\frac{3}{4}$ of a mile in width requires to be examined and determined.

It is designed to form a channel 50 feet wide across the shoal with a depth of 13 feet as far as the Railway Terminus, so that vessels freighted with iron for the Railway can discharge at the wharf.

It is proposed during the ensuing season to have this shoal dredged out to the extent named.

The work has been given out by contract and will be commenced in July.

Dredge "Challenge."

At the close of the last fiscal year the dredge was at the River Sydenham. On the 8th July it started for Kincardine and arrived there on Friday the 9th at 10 a.m. Owing to some repairs required to the shovel, work was not commenced till the 14th. The dredge worked at Kincardine till 20th Nov., 1875, when work stopped, in which interval 10,200 yards of material were removed from the basin. Work was resumed on 1st May, 1876, and the dredge was at work at Kincardine till the close of the fiscal year.

On the conclusion of the work, which may be looked for in a few weeks, the machine will be moved to Owen Sound.

During last winter the dredge was thoroughly repaired; the men's quarters were somewhat improved, with the addition of a larder for provisions, and an additional door.

A new heater was added to the Steam Engine so that the cost of fuel may be reduced.

A spare dipper was also made somewhat less in size than the one in use with a view of attacking boulders and loose rock. The latter addition to avoid loss of time is essential to a dredge.

A spare scow was also built, three scows being necessary in work where the haul is long.

The dredge, tug and scows are in good condition; the tug, however, will need restoration in the upper works before long, but it is anticipated she can work 2 or 3 seasons without this expense being necessary.

During the coming winter, the repairs resulting from the wear and tear may be looked for.

It is not impossible the Dredge may require to be caulked, owing to the constant vibration to which the hull is subjected.

The scows last winter were caulked and made effective.

With this explanation, this plant may be described as being in as good condition as it is possible for plant much worked to be in.

I have the honor to be, Sir,
Your obedient servant,

WILLIAM KINGSFORD,
Engineer in Charge.

F. BRAUN, Esq.,
Secretary, Dept. Public Works,
Ottawa.

APPENDIX No. 15.

MARITIME PROVINCES.—HARBORS, PIERS, RIVERS, ETC.

SAINT JOHN, NEW BRUNSWICK,
11th October, 1876.

SIR,—I have the honor to report on the works under my charge, in the Maritime Provinces, for the year ended 30th June, 1876. These consist of:—

Works under contract in New Brunswick.
 “ “ Nova Scotia.
 “ “ Prince Edward Island.
 “ direct charge in New Brunswick.
 “ “ Nova Scotia.

Improvement of Rivers.
 Dredging.
 Surveys and Examinations.

WORKS UNDER CONTRACT IN NEW BRUNSWICK.

Richibucto.

The works for extending the breakwater from the North Beach at the entrance of the harbor, were brought to conclusion in September, and since that time have stood well.

Pointe du Chêne.

The breakwater at this place was finished in September and has proved satisfactory in protecting the Railway wharf from easterly storms.

St. John Breakwater.

Up to the close of the fiscal year about one third of the work under contract had been completed. During the month of November, the work, as it then stood, was severely tested by a south-west gale, and an examination made after the storm showed that it had not received injury. The result to be attained from this work is to break the force of the heavy seas, which during south-westerly gales, are driven into the harbor of St. John.

Shippegan.

A contract has been made for the construction of a breakwater at Shippegan Gully, Gloucester Co., to protect the entrance to the passage between Shippegan Island and the mainland, and also to provide shelter for fishing vessels during north-east gales. About $\frac{1}{3}$ of the work has been performed.

WORKS UNDER CONTRACT IN NOVA SCOTIA.

Jordan Bay.

The breakwater at Jordan Bay was finished in January last, the results from its construction, have up to the present time been satisfactory.

Oak Point.

At Oak Point the works for the construction of an extension of the breakwater were finished in November. This spring it was found necessary to renew the capping and flooring of the portion on piles transferred by the local authorities to the Dominion.

Ingonish.

During the months of September and November, the pierwork which had been placed to its full length of 700 feet, was badly damaged by gales. This spring the damaged portion was taken up and replaced by a heavy structure. Owing to the peculiar nature of the bottom, the widening and deepening of the channel entrance has proceeded slowly and it is doubtful whether it will be completed during the present year. The full depth has however been obtained over the whole length of the channel sufficient to admit vessels, which now take advantage of the shelter afforded by the pond inside.

Mabou.

At Mabou, the works left unfinished and the closing of the old channel, were placed under contract and completed in April last.

Cow Bay.

The works for repairing the damages caused by the gale of August 1873 were nearly completed at the end of the fiscal year. By a judicious disposition of the ballast brought by vessels, this work is gradually being strengthened. Having been placed under the charge of the Harbor Master it will no doubt now be well looked after.

L'Ardoise.

L'Ardoise has been selected as the locality at which the amount appropriated for a breakwater between Michana and Mark Points, Richmond Co., C. B., is to be expended.

It lies on the eastern side of St. Peter's Bay, about 9 miles south-east from the entrance to St. Peter's Canal. The design of the breakwater is to provide shelter for the fishing fleet frequenting the Bay as far west as Chedabucto Bay. In February a contract was made for a breakwater 400 feet in length. At the end of the year the work had been fairly commenced.

St. Peter's Canal.

During the month of September a contract was entered into for the construction of a new and enlarged lock, and for widening the prism. This canal has been opened through the narrow neck of land (2,200 feet in width) separating the Atlantic at St. Peter's Bay from the waters of the Bras d'Or. At the end of the fiscal year the Contractor had only made a fair start and the canal had been closed against the passage of vessels.

WORKS UNDER CONTRACT IN PRINCE EDWARD ISLAND.

New London.

The works mentioned in my report of last year were completed in October last, and the effect obtained has been even greater than was expected, captains of vessels report 12 to 13 feet at low water on the bar, where previously but 8 feet could be had. The sand on the seaward side of the breakwater has silted up in a remarkable manner, adding most materially to the strength and permanence of the work.

Tignish.

The works of strengthening and repairing the breakwater at this place, owing to the loss of timber, have been somewhat delayed during the year. At its close only about $\frac{2}{3}$ of the work contracted for, had been executed.

Colville Bay.

In November, a contract was entered into for the extension westwardly for 896 feet, of the breakwater built some years ago by the Local Government, from Knight's Point, Souris, on the eastern side of Colville Bay. Souris is situated about 15 miles from the eastern point of Prince Edward Island, and is the eastern terminus of the Government Railway. The design is to afford a shelter to vessels, shelter much required in that locality and for which the site selected is well adapted. At the end of the year $\frac{1}{3}$ of the work had been completed.

WORKS UNDER DIRECT CHARGE IN NEW BRUNSWICK.

Grand Anse.

Grand Anse, Gloucester County, is a small bay on the south shore of the Baie des Chaleurs, about halfway between Shippagan Sound and Bathurst Harbor. The construction of a breakwater was commenced late last season and before the work in place could be thoroughly secured, it was disturbed by a heavy north-east gale. It was however protected for the winter, and at the close of the year, the work had been again resumed.

Campo Bello.

The amount appropriated was expended in connection with an equal amount granted by the Local Legislature in the completion of the breakwater at Wilson's Beach.

WORKS UNDER DIRECT CHARGE IN NOVA SCOTIA.

Meteghan Cove.

Meteghan Cove, Digby County, is situated on the east coast of St. Mary's Bay, about 2 miles south of River Meteghan, and 30 miles north of Yarmouth. The amount granted has been expended in an extension of the breakwater, built many years ago by the local authorities.

Brooklyn.

The breakwater at Brooklyn, damaged by the gale in November 1874, has been placed in a thorough state of repair and protected by the deposit of a large quantity of rock on the seaward side.

Trout Cove.

Trout Cove is situated on the Bay of Fundy coast of Digby Neck, in the county of Digby, about midway between Digby Gut and Petit Passage. The amount appropriated was expended in the construction of a further length to the breakwater built 20 years ago by the local authorities.

Margaree.

Margaree Harbor, Inverness Co., C. B., is formed inside the mouth of the River Margaree, having a narrow entrance obstructed by a bar of shifting sand. Many years ago the government constructed pier works for the improvement of this entrance, and the amount appropriated has been expended in their repair and extension seaward.

Harborville.

Harborville, Kings Co., on the southern shore of the Bay of Fundy, is about 60 miles to the eastward of Digby Gut. The amount appropriated has been expended in repairing and constructing an addition to the breakwater built some years ago by the local authorities assisted by the Local Government.

Broad Cove.

Broad Cove is situated near the south west extremity of Lunenburg Co., and about 15 miles eastward of the entrance to Liverpool Harbor. The amount appropriated has been expended in a Breakwater 400 feet in length, which affords a safe shelter for the smaller class of fishing vessels.

Margaretville.

Margaretville, Annapolis Co., is situated on the south shore of the Bay of Fundy, 45 miles east of Digby Gut. An addition in length has been made to the breakwater at this place, and portions of the old structure, built many years ago, were strengthened and repaired.

Oyster Pond.

Oyster Pond, Guysboro' Co., is situated on the northern shore of Chedabucto Bay and to the westward of the entrance to the Gut of Canso. The works at this place consist in deepening the entrance to the Pond for the admission of craft, and the protection of the sides of the channel, by timber work.

Cranberry Head.

Cranberry Head, Yarmouth County, is about 6 miles to the northward of Yarmouth. The amount appropriated has been expended in extending the breakwater 150 feet, constructed a number of years ago by the local authorities.

Church Point.

Church Point is situated on the eastern coast of St. Mary's Bay, Digby County. The breakwater was built about 30 years ago at the joint expense of the local

authorities and the Local Government. The amount appropriated has been expended in conjunction with a similar amount contributed by the locality, in repairing the old structure and adding to its length.

Saulnierville.

Saulnierville is about 5 miles southward from Church Point, and the amount appropriated, with a similar amount provided by the locality, has been expended in repairing the breakwater and adding 100 feet to its length.

Tusket.

Tusket, Yarmouth County, is about 20 miles to the southward of Yarmouth. Several large rocks have been removed from the channel entrance to the harbor.

IMPROVEMENT OF RIVERS.

The River St. John.

During the season of 1875 only one working party was employed. Their operations were confined principally to effecting improvements at the Meductic Falls. Much good has been effected at this point, the most difficult and dangerous between Fredericton and Woodstock.

Between St. John and Fredericton 164 "snags" have been removed from the steamboat channel, hauled on shore and cut up into short lengths.

South West Miramichi.

Many of the obstructions in the channel between the head of the south west boom and Indiantown have been removed. They generally consisted of large boulders which were blasted under water, and *débris* removed. The points of several small shoals were also cut through, and the channel thus improved freely admits at low water the passage of steamers plying between Chatham and Newcastle and Fredericton.

DREDGING

The "New Dominion."

At the commencement of the fiscal year this dredge was engaged at the entrance to the River Jemseg, N.B. Working there until August 6th, it removed 8,925 cubic yards of tough mud, forming a channel over a mile in length, and deepening and widening the old channel. An ample passage was thus obtained into the Grand Lake. On 7th August work was commenced on Beard's Bar, River Salmon, at the head of Grand Lake, operating there until 24th August, and removing 5,495 cubic yards of sand, saw dust and surface soil. On 26th of August work was commenced at Fredericton, and continued until the 11th day of November. In this period the dredge removed from opposite the public wharves and the public ferry landing, 22,785 cubic yards of a mixture of gravel, mud and sand. The dredge was then laid up for the winter and repaired. On 15th May, the dredge arrived at Beard's Bar, but owing to the great height of the spring freshet work was not commenced until June 8.

At the close of the fiscal year 6,020 cubic yards of sand and mud had been removed.

The "Canada."

At the close of the last fiscal year this dredge was reported as working at the "bar," at the entrance of Richibucto Harbor, N. B. Operations ceased there July 5th the dredge having removed 450 cubic yards of fine sand. On July 13th operations were commenced on the Seal Bar, Bathurst Harbor and continued until 4th October, resulting in the removal of 10,710 cubic yards of sand. On 2nd November, work was commenced at Lunenburg, N. S., to remove an accumulation of material in the channel, shoaling the water and almost preventing access at low tide. Work ceased 20th December, 9,000 cubic yards of soft mud and vegetable matter having been removed. On 1st January, 1876, this dredge arrived at Yarmouth, N. S., but owing to the freezing up of the harbor, it was unable to work until 12th day of April, when dredging was carried on until the end of the fiscal year, at which time 9,247 cubic yards of clay had been removed.

The "Cape Breton."

This dredge commenced work at Cheticamp, Inverness County, C. B., on 7th July, and continued working until 13th November, removing 30,590 yards of coarse gravel and sand. During the winter the machinery and scows were overhauled and put in repair. Dredging was resumed May 22nd and up to the end of the fiscal year, 15,225 yards of material had been removed.

The "Prince Edward."

At the commencement of the fiscal year this dredge was engaged at Crapaud, P. E. Island, and continued working there until October 16th, deepening the channel entrance to the harbor, having removed 24,385 cubic yards. On October 17th, dredging was commenced at the Railway wharf, at Charlottetown, and was carried on until November 25th, when the harbor was closed by ice and the work suspended. Up to the date mentioned, 11,158 cubic yards of mud have been removed. This spring, work was resumed May 29th and, at the close of the fiscal year, a further amount of 12,740 yards of mud had been removed.

The "St. Lawrence."

As mentioned in my last Report this dredge received damage from the ice on her passage across the Atlantic and the repairs found necessary were completed at the commencement of the fiscal year. A trial of the machinery was made in deepening the slips of the Royal Mail steamers at Messrs. Cunard and Company's wharves, Halifax, N. S., and 4,200 cubic yards of mud, ashes, &c., were removed; for this service Messrs. Cunard and Company paid to the Department the sum of \$750. On 16th July, orders were received to send this dredge to the Horse Shoe Shoal, Miramichi, N. B. She sailed, on the 20th, arrived at Pictou on the 21st, landing her spare gear on the Railway wharf. On 2nd August, work was commenced on the Horse Shoe Shoal and continued until the end of October, removing 25,550 cubic yards of sand. November 9, work was commenced in the removal of an obstruction in the East River of Pictou, N. S., and continued until December 1st removing 2,975 yards. Between the 10th and 17th of May, dredging was done in deepening the approach to the Railway wharf, at Pictou, and 2,625 cubic yards of mud were removed. The work was then resumed on the East River and continued until June 26th, 18,112 yards of mud having been removed. At the end of the fiscal year, the dredge was under orders to sail for Richibucto, N. B.

SURVEYS AND EXAMINATIONS.

During the year surveys and examinations were made at the following localities, and plans, reports and estimates of the works have been forwarded.

Arisaig.....	N. S.	Lingan Beach.....	N. S.
Annapolis.....	N. S.	Musquodoboit.....	N. S.
Baxter's Harbor.....	N. S.	Malpeque.....	P.E.I.
Bayfield.....	N. S.	Montague River.....	P.E.I.
Beach Point.....	P.E.I.	Nail Pond to Egmond Bay.....	P.E.I.
Beaver Cove.....	N. S.	North Sydney.....	N. S.
Bedeque.....	P.E.I.	Port Gilbert.....	N. S.
Canada Creek.....	N. S.	Pubnico.....	N. S.
Chipman's Brook.....	N. S.	Port Hood.....	N. S.
Cape Traverse.....	P.E.I.	Richibucto.....	N. B.
Christmas Island.....	N. S.	St. Peter's Bay.....	P.E.I.
Cove Head.....	P.E.I.	Scott's Bay.....	N. S.
Grand Manan.....	N. B.	Truro.....	N. S.
Hopewell.....	N. B.	Victoria Harbor.....	N. S.
Hall's Harbor.....	N. S.	West Arichat.....	N. S.
Liverpool.....	N. S.	Walton.....	N. S.
Lingan.....	N. S.	West Sandy Cove.....	N. S.

I have the honor to be, Sir,
Your obedient servant,

HENRY F. PERLEY,
Engineer in Charge.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

APPENDIX No. 16.

PUBLIC WORKS.

RAILWAY DEPARTMENT.

ENGINEER'S OFFICE,
ST. JOHN, 2nd October, 1876.

SIR,

I have the honor to report the following "New Works" of construction pertaining to the old lines of the Intercolonial Railway system, as having been executed during the fiscal year ended 30th June last.

NEW WORKS, 1875-76.

To meet the demands of the business of the road the siding accommodation has been increased at the following stations.

NEW ORDINARY SIDINGS.

	<i>Lineal feet.</i>
Spring Hill Station.....	1,815
Sackville do	292
New Glasgow do	2,000
	4,107=0.77 mile.

NEW COAL DROP SIDINGS.

	<i>Lineal feet.</i>
Londonderry Station	440
Oxford do	446
Memramcook do	346
Shediac do	573
Salisbury do	252
Hampton do	297
Rothsay do	352
	2,706=0.51 mile.

NEW COAL SHED SIDINGS.

	<i>Lineal feet.</i>
Halifax Station.....	41
Moncton do	928
St. John do	707
	1,676=0.32 mile.

Total..... 1.60 miles.

from which it appears that an aggregate length of new track has been added to the siding room of $1\frac{60}{100}$ miles, of which $0\frac{77}{100}$ mile was for general traffic, $0\frac{1}{100}$ mile for

supplying coal to the public with hopper cars, and $0\frac{32}{100}$ mile for supplying the traffic department with fuel.

NEW BUILDINGS.

For the accommodation of the traffic the following new Buildings have been erected :

Moose Path Station.—Combined Passenger & Freight Station.		
Pointe du Chêne Station.—Agent's Dwelling House,		
Sackville	do	Freight House,
Wentworth	do	do
New Glasgow	do	do

and in addition to the above the old Station House at New Glasgow has been rearranged greatly to facilitate the business at that station.

NIGHT AND DAY SIGNALS.

To guard against accidents to trains approaching stations, and to prevent collision with trains standing at stations, a thorough system of signals has been adopted throughout the Line. Night and day signal switches and semaphores have been erected at all stations which had not been previously provided with them. In future, therefore, accidents from running over misplaced switches or from trains coming into collision at stations cannot occur unless through gross carelessness.

FIRE SERVICE.

To protect the "Moncton Buildings" from destruction by fire, the cast iron pipes purchased in 1874-75 have been laid, connecting with the main water service. A powerful pumping engine has been provided and hydrants have been placed in such positions as to cover the entire block of buildings; all is so arranged as to provide an effective fire extinguisher.

HEATING APPARATUS.

A large boiler and extensive coils of iron pipes have been provided, set up and connected in the brick Car shop at Moncton, by which it is designed to heat the shop by steam. This arrangement, it is believed, will greatly facilitate the work of manufacturing and repairing rolling stock.

SNOW PLOUGH.

A snow excavator has been built upon a model designed by Road Master Rainnie. It is of novel design, and has been constructed as an experiment. It was completed too late in the season to give it a fair test last winter. Mr. Rainnie appears to be sanguine that it will prove effective, but it is questionable that as a plough to work on regular trains it will be equal to the emergency. Some improvement upon the present snow plough as known, is much needed for the work to be thoroughly done.

PICTOU LANDING WHARF.

The management having found the wharf at Pictou Landing inadequate to accommodate the business of the station at Pictou Landing for the past few years, the accommodation has been increased by the construction of a new wharf 615 feet long, of an average width of 52 feet, with a depth of 22 feet of water at the outer end; this addition, it is believed, will accommodate a larger business even than that of the past few years.

HALIFAX EXTENSION.

The work of extending the Railway in the City of Halifax is progressing steadily, the grading is well advanced; the rails are laid to the crossing of Water Street; the brick freight house is practically finished and the walls of the passenger station are being rapidly run up. There appears to be no doubt the works will be sufficiently advanced to admit of the North Street Terminus being made available for traffic purposes towards the close of the present season. The buildings are all durable and substantial structures. The freight house is of brick 500 feet long, averaging 35 feet wide. The passenger station is of brick, consisting of a two story building 50 feet by 112 feet for offices &c., and a shed 80 feet wide by 400 feet long, with an iron roof covering the "Tracks." When these station buildings are completed they will be the finest and most striking upon the Intercolonial Railway System.

The foregoing comprise the "New Works" executed during the past fiscal year.

Under the maintenance service, the road has undergone some improvement, and though at the close of the fiscal year ended 30th June 1875, I reported the Road in very efficient running condition, I am enabled now to report a further improvement.

During the year 35½ miles of old iron rails have been lifted and replaced by steel rails, and 68,275 old sleepers have been removed from the track, and replaced by new; the fencing has had a general overhauling; 25,708 rods of fencing having been renewed. The buildings as a rule are in good repair, and the wharf accommodation has been improved, especially at the Town of Pictou at which point the wharf has been extended out to the channel in the harbor. The rolling stock, I consider to be in good order, in fact the Road with all its appointments may be said to be in very good condition.

I have the honor to be, Sir,
Your obedient servant,

COLLINGWOOD SCHREIBER.

F. BRAUN, Esq., Secretary,
Department Public Works,
Ottawa.

 APPENDIX No. 17.

 REPORT OF THE CHIEF ARCHITECT.

 DEPARTMENT OF PUBLIC WORKS,
 OTTAWA, 30th October, 1876.

SIR,—I have the honor to report upon the new works, and the repairs made to the Public Buildings under the control of the Department, for the fiscal year ended 30th June, 1876.

 PROVINCE OF ONTARIO.

OTTAWA.

PARLIAMENT BUILDINGS.

As it is anticipated that the rooms, at present occupied as a Library, will at an early date be vacated, plans are in course of preparation for adapting them to the purposes of a Supreme Court. The requirements of the Court necessitate chambers for the Judges, and arrangements are being made to utilize the rooms now occupied by the Librarian and Assistants. It is designed to maintain the present communication between the Senate and House of Commons, and the old and new Libraries.

Alterations to a small extent, have been made to the clerk's entrances, in order to suit the general design for laying out the grounds.

A clock for the main tower has been ordered from Messrs. Dent & Co., London, England. It is expected that it will be placed in position next year.

The ordinary and usual repairs have been executed.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICE,

The building was roofed in last fall, and the works pushed on so vigorously during the winter that it was completed early in the spring.

The various fittings and fixtures have been finished. The building is now occupied.

Contractors for fittings, Messrs. Cameron & Mudie.

Architect, Mr. Walter Chesterton.

GROUNDS.

The following works, contracts for which were awarded last year, have been completed, viz :

Terrace walls, steps and fountain basin in front of Parliament building ; drains, gas and water pipes laid ; grounds of the square graded and sodded, and paths formed.

A large amount of day work has also been done in grading the grounds on the canal side of East Block ; adjoining workshops yard ; and to hill surrounding the Parliament Library.

Contractors for terrace walls, Messrs Harrow & Sinclair.

The footpaths are to be of two kinds; one being gravel laid on broken stones, with stone curb, the other Ewart's wood pavement. The last named was efficiently tested previous to adoption.

Work carried out under the immediate superintendence of the Department.

LIBRARY.

The decoration to ceiling of Library has been completed. The parquetry flooring, bookcases, gas and warming arrangements are now being executed. The building will be ready for occupation by the fall.

The whole of the wood work, and the heating apparatus, is being done by workmen employed in the Departmental shops.

Contractor for decoration, Mr. William McKay, of this city; iron railing, Messrs H. R. Ives & Co., of Montreal; glass for floor of galleries, Messrs McArthur & Co., of Montreal.

Architect in charge—Mr. John Bowes.

WEST BLOCK EXTENSION.—DEPARTMENTAL BUILDINGS.

The works to the basement portion of this extension, as mentioned in my last report, have been completed in a satisfactory manner by the Contractor Mr. B. Gibson. Further contracts have been entered into for the superstructure, viz: for the masonry bricklaying &c., with Messrs. Webster & Aitchison; for the carpenter and joiner work, plastering, slating, tinsmith's work, painting and glazing &c., with Messrs. Beckett, Aspell & Strachern, Ottawa, and for the iron work required in floors, roofs &c., with Messrs. Thomas Leighton & Co., Bridge and Iron Works, Rochester, U. S. It is expected that the building will be roofed in by this fall, to allow of the internal work being continued during the winter, and finished and ready for occupation by the end of year 1877. When completed the extension will consist of four floors or stages, viz: A basement extending over say two thirds of the whole area, ground floor, first floor, and attic, which, excepting the latter, will be on levels corresponding with the present floors in the Western Block. The area covered is 17,900 square feet, furnishing 58 additional offices on the three upper floors, besides 10 rooms in basement. Central corridors, on each floor, basement included, ten feet in width, run the entire length of the extension, having the various offices or rooms on either side. Three entrances are provided on the ground floor, and two on basement. On the ground floor one on the western face leads into the principal tower, which contains the central vestibule, two entrances are at the centre of the northern face, all opening into the corridor before named. The basement entrances are, one in the western face, to the right of the principal tower, and the other on the eastern face at the base of main staircase. The main staircase is placed in rear of central tower and is to be of stone, similar in construction to those at present existing in the Western Block. There will be moreover four iron circular stairways; one placed in the angle turret of the principal tower extending from the ground to first floor, one in each of the angle towers, on northern face, and in one of the offices, all from first to second floor. There are water closets &c., for each floor in a small wing projecting from east front and connected with each floor of main building by a passage.

The extension is a prolongation of that portion of the Western Block facing the Suspension Bridge and corresponds to a certain extent with the other portions of the Building.

The western or main front and northern front are broken by towers, the principal tower projecting 16 ft. from general face of building exclusive of its two octagonal angle turrets.

The eastern front is broken by the portion allotted to water closets, and Record Room, the latter projects forty eight-feet beyond the face of the main building, with a breadth of thirty-five feet, in other words it forms an additional wing of that extent.

The general external elevations shew five marked horizontal divisional lines, viz: (1) the base course; (2) a weathered and moulded course at level of first floor windows; (3) a moulded string course identical with, and connecting together on the spring-level the labels of the first floor windows; (4) a corbelled and moulded cornice between the first floor and attic; and (5) a corbelled and moulded cornice, finishing the wall upward, and crowning the attic arcade. Of these Nos. 1 and 4 are continuous and identical with the corresponding members in the present work. The architecture of the several stages embraced within these lines, closely approaches that of the present building. But as it has been found necessary to increase the proportion of window openings, a system of fenestration modified from that in the original work was decided upon. The same reason has led to the adoption of a half-story above the level of the string course (4) and a consequent shortening of the lower pitch of the mansard roof. This half-story consists of a cut-stone arcade, with cut-stone piers and polished granite shafts; the latter with carved caps and moulded bases. The arcade is pierced where necessary, for window openings.

The main tower is situate about the centre of finished front of Western Block. On the Plan the size is 32 x 40 feet, exclusive of two octagonal angle turrets. From the ground line upward, the stone-work will be in six stages; the first being below the base course and having within it, on the western side, the principal flight of entrance steps.

The second stage contains the principal entrance and the grand vestibule. A door from the vestibule leads into one of the corner turrets, from whence the Minister's room, occupying the third stage of the tower, is reached by an iron staircase. This room is 20 x 30 feet, exclusive of a large oriel window in front. To the right and left of this, doors open to the iron staircase and to a lavatory, both circular on plan. In addition to the light furnished by the oriel are two windows, one on each side, and also two windows in each angle turret. The oriel window is corbelled out from the face of wall by a succession of rich mouldings, and has columns with carved caps, and granite shafts, between the window openings, supporting richly moulded arches, the whole covered with an elaborate cornice and roof, surmounted by metal cresting.

The fourth stage is to be fitted up as an office, and will open on the central corridor. Both the fourth and fifth stages, externally, have small openings, and features not specially noticeable. The sixth stage has six large double traceried windows, two on either flank, and one on front and another in rear, the spandrils of which will be filled with carving. Above is a heavily moulded and corbelled cornice, from which rises in front a gable crocketed and pinnaled containing a rose window and with iron cresting and finials.

The tower roof framed in iron is on the lowest stage covered with slate and on the upper with copper being finished with iron cresting and finials.

CONSTRUCTION.

The external walls throughout will be limestone, faced externally with Nepean stone for wall surfaces, and Cleveland stone for dressings. With the exception of the main tower, all the external walls are lined with brickwork, having a cavity between stone and brick. All internal walls except those of the main tower, which are of squared blocks of limestone, are to be brick and will be carried up to the under-side of the roof boards. Internally the finish will be carried out to correspond to that of the existing work, so far as general features are considered, but with somewhat altered detail.

The floors throughout are to be supported on rolled iron joists carrying brick arches which are to be levelled up with concrete and cement. Wood fillets for securing the floor boards will be placed on the concrete. The ground and first floor corridors will have parquetry floors.

The main roof framing is to be of iron excepting the necessary woodwork for securing the roof boards. The deck covering will be of galvanized iron, and the sides

or slopes will be of slate. Wrought iron cresting colored and gilded will be used to ornament all the roofing.

It is proposed to heat the building by steam in the manner known as "direct radiation." All rooms to have special coils of sizes proportionate to their cubic contents, placed in the recesses of the windows. Fresh air will be admitted through special openings in the outer or external wall. Foul air being extracted on a level with the ceilings of the offices, will be carried off in foul air shafts above the ceiling of corridors to the extract shaft between the present building and the extension, and by fire places.

The water supply is to be arranged to suit the various requirements of the offices &c., as well as for fire purposes. The system will closely approximate to that existing throughout the present buildings.

Sashes throughout are to be constructed on a new principle, having inner casement and blind, for summer use, and casement and outer sashes taking the place of summer blinds in winter. These are so arranged as to ventilate the rooms perfectly without draught.

Painting and glazing will be carried out as to finish similarly to that in the present buildings.

The plastering will be carried out throughout the three flats and a portion of basement, in harmony with the existing work.

The drawings have been prepared, and the work is now being carried on under the immediate superintendence of the Chief Architect.

EAST BLOCK—DEPARTMENTAL BUILDINGS.

The usual and necessary repairs have been executed.

WORKSHOPS.

This building was finished and occupied last fall, and has been found to answer the purpose for which it was built.

The enclosure wall on the line of Bank Street, during the course of last summer, was carried down as near as possible to the River. Entrance gates to the workshops and "Lovers' Walk" have been made. A portion of the wall has been utilized for one side of the coal sheds erected in connection with the building.

Plans are now being prepared for other walls, required to enclose the space allotted to the workshops; also for a new drying house, and sheds for the timber, in order to make the whole complete.

Contractors for main building, Messrs. Mathews, Stewart and Stockland; Contractor for enclosure wall, Mr. Toms.

The enclosure walls to workshops yard, lumber shed and drying house mentioned in last report are completed. Contractor, Mr. F. Toms.

This will render the workshops complete and self contained, as one of the special buildings on the Parliament Hill. The appearance of the whole is plain and without ornament.

Works carried out under the immediate superintendence of the Department.

GUELPH.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICE.

Plans having been prepared for this building by the Department, tenders have been received and will be adjudicated at an early date.

It is intended to erect the building on a convenient site, at the intersection of Wyndham and Douglas Streets, facing St. George's Square. The building will be of simple design—the outer walls to be built of local limestone, with cutstone dressings, and division walls of brick. The plan, being of irregular form, it will average about 70 x 40 feet, and be three stories in height above the sidewalks. The basement, 9 feet high, will be appropriated for examining warehouse, Gas Inspector's office, boiler and fuel, cellar, water closets &c. Access to basement, in rear of building, will be obtained by an inclined roadway, and by stairs from ground floor. The ground floor, 14 ft. high, will contain the Post Office proper 36 x 42 feet, with three public entrances, one from each street and one facing the square, with an entrance on Wyndham Street for officials. Two brick vaults for safes are provided on this floor for Post Office. Immediately adjoining Douglas St. entrance is the office for weights and measures and the stairs leading to basement and upper floors.

The first floor, 12 ft. high, is appropriated to the Inland Revenue and Customs—the Long room for the former being 36 x 22 feet. The second, or attic floor, which is contained in the mansard roof, is utilized, for half the area only, by rooms for the caretaker and a large store room.

The work will be pushed on this year so as to have the building ready as early as possible.

TORONTO.

EXAMINING WAREHOUSE.

This building, of a solid and substantial character, is being rapidly completed and will, no doubt, be ready for occupation at the close of this year.

The work so far has been satisfactorily executed.

Arrangements are being entered into for the erection of a steam hoist with boiler, engines and machinery complete.

Arrangements have been made for the purchase of the lot adjoining the building, so that in case of further accommodation being required, sheds can be erected. The walls of these sheds will then form a portion of another building, should still further accommodation be needed.

Architect Mr. W. Irving, Toronto.

Contractor, Mr. B. Walton.

NEW CUSTOM HOUSE.

The various contract works have been completed and the building will be occupied at an early date.

The building and grounds are being fenced in a style to suit the building.

The various fittings &c. required are being executed by Mr. B. Walton, the contractor of building, under the superintendence of Mr. William Irving, architect.

KINGSTON.

FORTIFICATIONS.

Plans are in course of preparation for the Commandant's house, the late house having been found so much decayed that it was useless to attempt to restore it. The new building will occupy the old site. It will be a brick building 54 x 40 average.

Owing to the great extent of the works a large amount of repairs &c., has been required. Though slight in detail, in the total they amount to a large quantity.

The Military College was occupied on the 1st day of June 1876; since then slight alterations and additions have been made.

General plans have been prepared and approved of by the Department for the full extent of the buildings. They will form 3 sides of a square with cortiles or open corridors connecting them, each block being kept distinct from the other for the avoidance of risk from fire.

In pursuance of this plan the central portion is about to be proceeded with. The main building will be 150 x 52, 4 stories in height with wings 28 x 35 and 50 x 20. It is proposed to have the cut stone and if possible much of the other works executed by the convicts in the Penitentiary.

The outbuildings and fences have yet to be arranged for.
Superintendent Architect, Mr. R. Gage, of Kingston.

PROVINCE OF QUEBEC.

MONTREAL.

NEW POST OFFICE.

The works on this building are completed with the exception of the fittings which are expected to be furnished by the end of September, when the building will be ready for occupation.

Architect, Mr. H. M. Perrault. Contractors for fittings, Messrs. Allard & Dufort. Lock boxes, Messrs. Chanteloup & Mitchell, all of Montreal.

EXAMINING WAREHOUSE.

Contracts have been entered into for the erection of this building, the walls of which are now being built.

The delay in commencing this work was caused by the tardiness of the City Council in accepting the offer made by the Government for the purchase of a lot required by them to widen the street; the offer was at last accepted and the work started immediately.

The building is to be plain in character, but substantial and extensive. The external walls will be built of Montreal grey limestone; the internal walls supporting joists to be brick, pierced by archways for the purpose of more easily arranging goods. A new feature has been adopted in this building, viz: having the tramway lowered, so that the top of carts or trucks requiring to be laden or unladen will be on a level with the floor line. Tramways will be made through the building from Common to McGill Streets, also from Common Street to the lane in rear of the building.

Hoists to be worked by steam power, are to be placed in different parts of the building, so that goods can be taken from floor to floor, or from the street to any floor.

A space has been left at the junction of Common and McGill streets for the erection, if necessary, of offices for the Lachine Canal; the site being central and convenient both for Officials and the Public.

All works have progressed satisfactorily. It is expected that the building will be roofed in early this ensuing fall, and interior work finished during the winter, so as to have it ready for occupation next spring.

Architects, Messrs Bourgeau and Leprohon. Contractors, Messrs Bourgoiin and Lamontagne, all of Montreal.

 QUEBEC AND LEVIS.

FORTIFICATIONS.

During the past year a large amount of necessary repairs have been executed. Work done by day labor under the superintendence of L. P. Gauvreau, architect.

 PROVINCE OF NEW BRUNSWICK.

ST. JOHN.

NEW POST OFFICE.

All the contract works have been completed, and the building is now occupied. Fittings executed by Messrs. Sterling & Emery. Architect, Mr. Matthew Stead.

DORCHESTER.

PENITENTIARY MARITIME PROVINCES.

Plans are now in course of preparation by the Department for this Building to be located near Dorchester, N. B.

The Building is so arranged as to be capable of future enlargement, the form decided upon being cruciform in plan, having four wings radiating from a Central Hall or Rotunda. Three of these wings are to be appropriated for cells, the other being for the accommodation of Warden and his officers.

The Hall or Rotunda, 60 feet long by 40 ft. wide, is lighted by windows above roofs of adjoining wings and a lantern light in roof. Galleries are placed all round at the level of the galleries to cells. On the opposite side to the administrative wing is a foul air shaft, which receives the foul air duct above the cells, each cell being connected with it.

In the basement under Hall are 6 dungeons, and adjoining is the boiler house and fuel store; a flue from boiler house is connected with smoke flue which runs through the centre of foul air shaft.

This Central Hall has four outlooks placed at the intersection of the wings. Keepers will thus have complete surveillance externally as well as internally over the prisoners.

The administrative wing is four stories in height, containing apartments for the Warden and the various officers. A chapel is provided in the rear on the first floor with Chaplain's room adjoining. The second floor is set apart for hospital wards.

The cells are proposed to be built of cut stone disconnected from outer walls by a corridor 10 feet wide running all round each of the cell wings. The cells are four stories in height, the three upper open out into galleries continued around the Central Hall but connected with ground floor by means of iron staircases.

The building is proposed to be built of stone from the immediate vicinity; the roof to be covered with slate. The Building when finished is to accommodate 360 prisoners; at present it is proposed to erect one wing only for the prisoners and the one for administrative purposes. The other wings to be erected by the prisoners in case further extension is required.

Tenders are to be asked for at an early date, so that the work can be prosecuted during the ensuing winter.

 PROVINCE OF NOVA SCOTIA.

 HALIFAX.

 LAWLOR ISLAND—QUARANTINE HOSPITAL.

A small pier with boat house was erected on the site of Lawlor's old wharf. The road from the hospital to the burying ground and from the Steward's house to the pier have been improved. Architect, Mr. William Elliott, of Halifax.

 PICTOU.

 CUSTOM HOUSE.

The works under contract are nearly completed; the building will be ready for occupation this fall.

Architects, Messrs Sterling & Dewar of Halifax. Contractors, Messrs. W. L. & J. A. Dodge.

 SYDNEY, C. B.

 MARINE HOSPITAL, BATTERY POINT.

The site for this building was purchased early last year, and the building now being erected, covers an area of 2,200 superficial feet. It is advantageously situated and well drained and is nearly completed. The superstructure is built upon a stone foundation; a cellar being formed under the whole of the kitchen offices. The plan is in the form of the letter L; the bottom of the L being appropriated for kitchen offices and nurses' rooms. The upper or vertical portion of the letter L represents the wards. The end portion of the ward to the extent of 10 feet being cut off and separated from the main ward for patients with infectious diseases. The wards are amply lighted on sides and ends and thoroughly ventilated by louvres over each window, three ventilators in roof and by flues. The main or principal ward is 41 feet long and 20 feet wide and will accommodate 20 patients. At the end of ward ext kitchen offices, are the nurses' rooms with windows overlooking ward, and stairs leading to first floor which extends over both kitchen offices and nurses' rooms, and contains 4 rooms for the use of the officials.

The superstructure is substantially constructed of wood and the roof covered with shingles.

The drawings were prepared and the work superintended by the Department. Contractor, William Abner MacLean.

 PROVINCE OF MANITOBA.

WINNIPEG.

CUSTOM HOUSE, POST OFFICE, LANDS AND REVENUE OFFICES.

The Custom House and Lands Office have been finished and are now occupied. In connection with the Post Office and Revenue Offices, there still remain to be executed the fittings and other works required to render the offices suitable for the purposes for which they are intended. It is anticipated that they will be occupied in the course of two or three months.

Architect, Mr. J. P. M^c Lecourt. Contractor, Mr. Joseph Wood.

PENITENTIARY.

This building is roofed in and all external work completed, as well as a large proportion of the inside work. The building will be completed and ready for occupation this fall. Progress of work has been satisfactory. The work has been performed under the superintendence of the Department. So soon as convicts are transferred to the new building, their labor will be utilized.

Contractors, Messrs. Morrison & Barclay, of Guelph, Ontario.

 PROVINCE OF BRITISH COLUMBIA.

WESTMINSTER.

PENITENTIARY.

The works on this building have up to date proceeded satisfactorily.

The building is roofed in, and all external work completed.

It is anticipated that the building will be entirely completed and ready for occupation early next spring.

Architect in charge, Hon. B. W. Pearse. Contractors, Messrs. Kinsman & Styles.

 PROVINCE OF PRINCE EDWARD ISLAND.

SOURIS.

MARINE HOSPITAL.

A suitable site was purchased for this building in Souris, to the north of the town, early last year. The building has since been erected. The administrative portion consists on main floor, of nurses' room, overlooking ward, kitchen, scullery,

pantry and larder, and entrance hall. First floor contains three bedrooms. The ward lighted on three sides is arranged for eight beds, with a ventilator in ceiling, running through roof and terminating with louvred openings. Extra ventilation is provided for by louvres fixed over each window.

The building is constructed of wood and roof covered with shingles. Sketches were furnished by Messrs. Sterling & Dewar, architects, Halifax, N. S. Contractor, Mr. John McCormack. The work superintended by the Department.

I have the honor to be, Sir,
Your obedient servant,

THOS. S. SCOTT,
Chief Architect, Public Works.

F. BRAUN, Esq., Secretary,
Department of Public Works.

APPENDIX No. 18.

TORONTO HARBOR.

OTTAWA, 20th April, 1876.

SIR,—In obedience to the instructions of the Hon. the Minister, I have the honor to report on Toronto Harbor, particularly with the view of considering the best mode of expending the amount remaining of the Parliamentary appropriation, viz: \$17,700.

I submitted in my first report that to my mind the improvement immediately called for was deepening and straightening the western entrance. I will not occupy the attention of the Hon. the Minister with a repetition of the arguments with which I sustained this view, but I feel warranted in remarking that nothing has taken place to lead me to modify the opinions I then expressed.

The difficulty under which the Harbor of Toronto labors, is the shallowness and indirectness of the Western Entrance, the present depth varying from ten to eleven feet at ordinary water: a difficulty removable if the necessary expenditure be incurred.

Although in no way it comes within my province to deal with the deficiencies of this harbor as a whole, it is my duty to point out that no one of the wharves has a greater depth at the extremity than twelve feet. This fact, important as it is, in no way detracts from the extraordinary capacity of these waters. A few hundred feet in each case added to the present wharves will obtain a depth of sixteen feet, which for centuries, will doubtless, be the normal navigation of Lake Ontario. It is not improbable that the Esplanade will be eventually extended in width. Should this work ever be carried out, the wharves, as a consequence, will be forced into deeper water.

On the other hand the entrance may be said to fall under the cognizance of the Department as a minor section of the main line of navigation.

At the site of the Queen's Wharf an outcrop of rock is found. This rock extends to the east to deep water, by which term I mean sixteen feet in depth. It is here that the channel should be widened and straightened to attain a width of 300 feet, extending in a distance of 2,750 feet easterly, to a width of 400 feet. Reference to the map will show that a curved line has to be followed to effect this communication. In after-years the curve can be thrown out and the southern line of the channel flattened. With the exception of a strip on the south side 1,200 feet in length, with an average of three feet of earth excavation, amounting to about 18,000 cubic yards, the whole excavation is of rock. Westerly the excavation is of gravel for a length of 1,350 feet to connect with the deep water of the lake, the width of the channel being gradually increased to 500 feet.

In the matter of rock excavation I am informed it has been treated with a dredge at a cost of sixty cents per yard, the result having been unsatisfactory both to the Harbor Commissioners and the contractor.

With regard to the earth excavation I see no reason why it should be dealt with differently to other work of the same character, and I respectfully recommend when expedient that tenders be called for by advertisement at so much per hour, the job being carried on under the control of the Department.

Little really is known concerning the workable character of the rock. Considering that a depth generally of about four feet has to be removed in order to obtain a

channel of sixteen feet, the work challenges more that usual attention. The success of nitro-glycerine as an explosive suggests its agency in this case, and I beg leave to recommend that an effort be made to test its efficacy. Our operations being carried on for some weeks under a superintendent, as at Kingston, would establish both the nature of the rock and the cost of removing it. It will then be open to the Hon. the Minister to determine whether he will continue the improvement in this wise or by contract. I have accordingly to submit that I be authorized to make arrangements for the removal of a portion of the rock by time work under a superintendent.

Should this recommendation be approved I will be able shortly to establish the cost of the excavation, and be in a position to apportion the expenditure for the removal of the rock and for dredging. This mode of proceeding reserves to the Hon. the Minister the right of taking the course he may conceive expedient, while it ensures an economical application of the money voted.

I have the honor to be, Sir,
Your obedient servant,

WILLIAM KINGSFORD,
Engineer in Charge.

F. BRAUN, Esq., Secretary,
Department of Public Works.

APPENDIX No. 19.

EXAMINATION OF RIVER DETROIT RAILWAY TUNNEL.

OTTAWA, 8th April, 1876.

SIR,—I have the honor to report the result of the survey of the River Detroit near Amherstburgh, in order to determine the practicability of a railway tunnel; a work conceived in the general interests of all railways having connections in the State of Michigan, but specially with the view of avoiding the obstruction to navigation arising from Railway Bridges or from the erection of prolonged and extensive piers.

The subject divides itself into the following heads.

1. The advisability of tunnelling, in view of the impediments to navigation which a railway bridge would create.
2. The various sites where a tunnel is feasible.
3. The advantages offered by the locality in question.
 - [a] The nature of the soil to be worked.
 - [b] The connection which it extends to Railways.
4. The dimensions of the tunnel, whether for a single or double track.
5. The form of the tunnel, the dimensions required being greater than those hitherto called for owing to the increased width of the Pulman car.
6. The character of the survey.
7. The contingencies to be guarded against in its working, viz: the necessity of a thorough system of drainage both for the tunnel and its approaches, and the steps to be taken to prevent any impediment to traffic from snow filling up the cuts.
8. The cost of the whole including the approaches and track.
9. The period necessary to place it in full operation.

1. The feasibility of obtaining railway connection across the River Detroit by bridge or tunnel, to obviate the difficulty experienced in severe winters in maintaining traffic between Canada and Michigan, has been a subject of inquiry for many years. The very circumstance of the geographical position of this portion of Western Canada, affording railway connection between the East and West in the most direct line and with grades uncommonly light, suggested that the route remained incomplete till connection in some form was made, to cross either above or under the waters, with which at both terminations it is bounded.

The construction of the Niagara Suspension Bridge pointed to the necessity of a similar connection at the opposite extremity, and although the question has been debated with warmth, the real point at issue seems to have escaped notice.

The real question is how this connection—on all sides an admitted necessity—can better be obtained, by tunnel or by bridge. Hitherto the representatives of the Railway interest, which till late years was identical with that of the Great Western Railway, have advocated the erection of a bridge at the River Detroit, and there seems ground to think that some prejudice was entertained by them against the construction of a tunnel.

In 1873 the question of bridging the channel between Lakes Huron and Erie, was referred by the United States Government to a Board of Officers, composed of men of eminence in the Engineer Corps holding high rank in the United States Army. The subject was narrowly examined by them with due regard to all interests concerned. Their report on the subject is marked by much ability and follows the several points to be considered in a direct and straightforward manner. I have to express my many obligations to this report, and I have to add that my own convictions entirely accord with the opinion it expresses, viz: "that no bridge giving passage to vessels by draws

alone, with draw spans at present practicable, can be permitted without serious injury to navigation."

This Board met on the 12th of May 1873, and the matter was discussed before it by the parties interested for some days, when it adjourned till the 4th of November for observations to be made on the velocity and direction of the currents, on the nature of the bottom, etc., while on the other hand a record was made of passing vessels and of the methods of navigation then in use.

On the reassembly of the Board, further statements were submitted and the report was drafted bearing date 23rd December 1873. We have accordingly a record of a deliberate and systematic investigation, and the conclusions cannot fail to command respect from the care with which they are presented. It must be borne in mind that this report is founded on American statistics only. It thus appears that 40 per cent of the total coast and foreign trade of the United States, represents the trade of the Northern Lakes and that $\frac{1}{4}$ of the total number of United States vessels are engaged in it.

During the months of navigation 27,000 vessels annually pass this channel, 20,000 of which carry masts from 80 to 160 feet in height. Many of these vessels are included in tows and the total number of separate passages may be set down at 15,000.

The amount of freight carried on these Lakes is nine millions (9,000,000) of tons.

In 1873 it was estimated that the freight carried by the Great Western Railway was $\frac{1}{10}$ of this quantity.

The Canada Southern Railway has been since put in operation and these figures may have been modified, but no statistics are at the command of the writer to shew to what extent.

The advocates of the bridge have reasoned that an unbroken connection would greatly increase the amount of freight carried by Railway, and that hence the number of the vessels would be reduced and therefore the requirements of a swing bridge would not be so extensive as they are to-day.

The proposed bridge at Detroit was to have a headway of 12 feet on piers 200 feet apart, with two swing bridges having each 2 openings of 166 feet. Some remarks on this subject are made which are here repeated. "If the right of way was given to vessels passing through a draw, it would subject the Railroad trains to as severe a blockade as they have ever suffered heretofore from insufficient ferriage; thus in the single month of June 1873, as appears by the records kept by the Board, there were three hundred and sixty-one times when the draw would have had to be kept open for 20 minutes or more; ninety-three times for 30 minutes or more; twenty times for 45 minutes or more, and once for an hour and a quarter, to make way for vessels passing in one direction only. This is based on the belief that twelve minutes must be allowed for closing the draw, passing a train and opening again.

If it took 14 minutes to do this, there was one instance where the draw would have been kept open for two hours and a half; but the vessels passing in the opposite direction might keep open the other draw after the one just considered was closed, and thus still longer delay the passing of trains."

Viewed therefore purely from the standing point of Railway interests, it is questionable if a Railway Bridge with a swing would fulfil the functions required of it. The continued interruptions can in no way be calculated. The mode now adopted of passing freight and passengers by a ferry has at least the advantage, that except when the River is cumbered by ice, the boat can at once pass to the opposite shore, but there would be no guarantee even for the ordinary passenger train that connection with the bridge would be made readily and without impediment. There are no waters on this Continent with which a parallel can be drawn with the River crossing in question. Scarcely any vessels but large passenger steamboats and occasional tows are seen on the Hudson a few miles above New York.

One of the most striking features of the Mississippi is the few craft seen upon its waters. The River Detroit on the other hand forms the only highway through which the traffic of the Lakes must pass, and it likewise furnishes points whence no little of that traffic takes its rise.

Thus it would be rare when the service of the swing bridge would not be required. In the matter of freight an hour's delay is not of great importance. In the case of passengers it would prove serious. The great proportion of passengers over the lines traversing Western Ontario, are Americans passing to and from the West, who are transferred to trains on both sides of the River Detroit. A train arriving somewhat late on the Canadian side, could ill afford to submit to delay occasioned by the opening of the swing. It is by no means improbable that many complicated questions would arise both from asserted obstructions to navigation, and from delays either to the starting of western trains from Detroit or from passengers who had failed to make connection.

With the tunnel, none of these contingencies are possible, and it would have the indisputable merit of always affording an uninterrupted outlet in either direction.

I think therefore it may be maintained that theoretically in the interests of Railway Companies, the tunnel is preferable, while the possibility of interruptions to navigation is equally a strong argument that no bridge, other than one constructed on a high level should be tolerated.

2. Three localities have been pointed out for the site of the tunnel. Although it may be said generally that no engineering difficulties exist either in the River St. Clair, as the river is called north of Lake St. Clair, in reality the choice lies between two points, one opposite the City of Detroit connecting with Windsor, and the other north of Amherstburgh where the present examination has been made.

The Grand Trunk Railway has its crossing at Sarnia.

The Board of Officers of the American Engineers stated in their report above quoted, "The Grand Trunk Railway apparently has no desire for a bridge at Sarnia and has not furnished any statistics to the Board in reference to freight crossed there." My own experience confirms this view.

The waters at the Sarnia crossing are constantly open even in the most severe frosts of winter. The ice at the foot of Lake Huron forms a blockade to the descent of the lake ice, while the rapidity of the current at the spot where the crossing is made, keeps the water constantly open.

The crossing of the Canada Southern at Courtright has preferred no claim for either a bridge or tunnel. It is evident that if freight could be passed at Amherstburgh it is not likely that a similar expense would be incurred a few miles north by a Company having the right of crossing below. Even were the opposite Railways in Michigan in operation to connect with the line terminating at Courtright, the latter would still be only a branch line, to transfer freight and passengers as long as a ferry could ply; and when the River was unnavigable owing to ice, recourse would be had to the Amherstburgh connection.

The choice therefore really lies between two sites: Detroit, and the passage across Stony Island to Grosse Isle.

A tunnel was commenced at the former place in the winter of 1872 and was afterwards abandoned. The feeling appears to be that there was no real cause that it should not have been persevered in, and the theory has gained ground that there was never any strong desire for its success. On the other hand it is asserted that this view is unfounded and unfair. The loss of life which occurred from mephitic gases was greatly exaggerated. Two men only were unfortunately suffocated, and on the introduction of new ventilating apparatus, no further inconvenience on this score was experienced. There is no reason to think that the water could not have been kept down by powerful pumping apparatus.

Mr. Chesebrough, now the City Engineer of Chicago, in a paper read before the Society of Civil Engineers at Louisville, described the tunnel as a simple engineering problem and in every way practicable. The only question raised by him was as to the judicious expenditure of the money required for its construction. The limestone is 110 feet below the river level overlaid by formations of hard pan and stiff blue clay in which veins of sand are met. It has been stated that the estimated cost of the tunnel was \$2,600,000. The reason assigned for the abandonment of the work

was, that by proper application, a bridge could be obtained at less expense and could be completed in less time. At Amherstburgh the proposition is much narrowed. The bottom of the river is composed of smooth rock, and there is no reason to doubt that it can be easily worked.

Mr. Finney, who was then Chief Engineer of the Canada Southern line in his answers to the questions of the Board of Engineers, stated, "that the rock is so permeated with seams that it would be practically out of the question to construct a tunnel near Amherstburgh." I cannot learn on what grounds this opinion is expressed for whatever the nature of the rock, it is scarcely to be supposed that a tunnel can be carried under any navigable river without the possibility of being flooded from seams above. But the assumption that there is special ground to anticipate any excessive discharge is perfectly gratuitous. There is no fact that I can learn to justify this opinion. On the contrary, the indications suggest that the rock can be easily worked and that no extraordinary discharge of water may be anticipated.

The advantages to be derived from the selection of this site may be thus particularised. The present navigation of the Lakes may be said to be determined by the depth of the St. Clair ship canal, 16 feet. The operations of last season at the Lime Kilns obtained ascending and descending lines to a depth of 14.5 feet of water. This limit however must not be considered as the depth permanently established at this site. It is not improbable that the United States Government will assist to increase the depth to 16 feet.

At the proposed site of the tunnel there is a channel of 1900 feet for 16 feet of water. There is moreover an indication that the United States authorities will eventually establish the Lake navigation at the depth of 19 feet, the depth of Lake St. Clair—at the site in question there is a channel of 19 feet depth for 950 feet.

The waterway itself is interrupted by a small island called Stony Island within the territory of the United States. A channel separates it from Grosse Isle; the main American channel intervening between the island and the main shore.

The distances are as follows,

The waterway from the Canada shore to Stony Island.....	3,700 feet
Across Stony Island.....	2,500 "
From Stony Island to Grosse Isle.....	1,100 "

The distance across Grosse Isle may be stated at 8,550 feet. Its extent admits of the Western approach of the tunnel coming out to grade before the water of the American channel between it and the mainland are met. Possibly there is no point on the river where more natural advantages present themselves and where less difficulties are to be overcome. The character of the rock will be treated under a separate head.

Geographically the site admits of connection being made with the tunnel by the two railways directly interested in its construction.

From the open crossing which the Grand Trunk Railway possesses at Sarnia and the powerful ferry in use there, it is evident that this company considers that it has few requirements for connection with Michigan either by bridge or tunnel. But should it happen that the Railway had to take the tunnel, a connection could be made at London and thence by the Great Western to St. Thomas, whence the Canada Southern could be followed to Amherstburgh.

The site examined is on the direct line of the Canada Southern. Its construction would do away with the wooden bridge now in use between Stony Island and Grosse Isle, and would admit of the removal of the projecting piers and wharves on the Canada shore which have so much accelerated the current.

The connection of the Great Western with the tunnel can be made by a line from Windsor to its entrance possibly in 15 miles, but by taking some 18 or 20 miles of the track of the Canada Southern, a line of 6 or 7 miles would suffice.

The crossing examined, while it possesses the advantages set forth equally presents the minimum of water distance to be undertaken and will admit of the construction of the tunnel proper to be reduced to 9,800 feet. Moreover every facility is offered

for the sinkage of shafts, so that without extraordinary expense the work could be simultaneously carried on at several points and be soon brought to completion.

3. The whole foundation of the tunnel will be in the rock. The section shewing the waterway and the position of the rock suggests that in foregone ages the River Detroit was wider at this point than at present, and that as time has moved onwards the River has been gradually narrowed by deposits of clay and sand.

The rock is known as the Corniferous formation and stands at the base of the Devonian. It is nearly the highest series of Canadian Geology, the only higher horizons being the Hamilton shale and the Chemung and Portage group. It varies in color in different localities. At this spot it is a pronounced buff and is well adapted for building stone, being in beds of from one to two feet. A quarry in the neighbourhood is now being worked. It contains many fossils, principally zoophyta, brachiopoda, lamellibranchiata and some crustaceans, the trilobite and the orthoceras. The stone itself is massive and finely granulated.

The diver reports the bottom of the river smooth and solid, but there are considerations which present themselves and which suggest that this rock will be marked by crevices. If such be the case, the tunnel will require to be lined throughout.

These rocks are exceedingly bituminous and the fossils of corals and crinoids are found frequently saturated with petroleum or rock-oil. They are found to prevail in distinct bands, and while some are found to be saturated with oil, fossils above and below are free from such influences. The theory has been entertained that it is in these rocks that the petroleum is generated which finds its way to the surface through the superincumbent Hamilton shales. The oil is found generally at the line of the great anticlinal, running through the western peninsula, or at its subordinate modulations. It is reasoned that the petroleum permeates this strata with water and being lighter rises to the summit.

These facts certainly presuppose the presence of fissures in this rock, and though the outcrop at Malden is in sufficiently level and parallel beds, it can scarcely be hoped that it will be as compact as in the case of older rocks and require no protection. Moreover in passing under the bed of the river, it can scarcely be expected that no percolation will arise through seams. Hence the expense of lining with brick work may be looked on as unavoidable. Doubtless had it been possible, it would have been advisable to have driven a heading some few feet square and some few feet in length to test the working of the rock and its porosity. Such a proceeding would have thoroughly determined the nature of the rock, but as no special Parliamentary appropriation had been made, the expenditure was not considered advisable.

4. The dimensions which economical considerations may suggest in the construction of the tunnel, will in no way effect the results which are looked for. Its geographical position is precisely at a point where no impediment to traffic should be created. Passengers and freight should be passed onward without hindrance, so as to make connection with the lines on the opposite bank of the river. The total distance from the descent from the present grade to gain the same grade at Grosse-Isle is 4.46 miles, and the limitation of this distance to a single track would go far to neutralize the advantages which as a theory would be derived from the tunnel. It may be said that no gain will be experienced in summer, that when the navigation is open but few minutes of delay is experienced, and that only in the extreme cold of winter the tunnel will supply the link required. Much embarrassment is felt at present at the two crossings of the River Niagara. The Suspension Bridge and the International Bridge have each but a single track. No doubt this limitation arose purely from money considerations. Perhaps under the circumstances it was unavoidable, but the frequent interruptions to transit experienced, are described as sufficiently serious, and regret is expressed that the accommodation is not more extended.

The tunnel being made for a double track will assume its permanent form. In bridges the rule generally obtains, that when only a single track is determined on, to put in the foundations for a double track and build the piers to a certain level above

low water, so that when increased commerce or greater prosperity admit of constructing a double track no impediment will be found in extending the work. With a tunnel no such elasticity of construction is admissible. As it is first made so it must remain, for there is no means of increasing its width in the face of a large and continuous traffic, and the only mode of doubling the track is to build a tunnel identical in form side by side with that then existing. The increased cost caused by this proceeding is evident. Whereas by constructing the tunnel in the first instance for a double track, the minimum of expense will be incurred and a permanent work placed in position. A tunnel for a single track can necessarily be constructed for a less sum than the more enlarged tunnel, but the saving effected would in no way be in proportion to the loss of accommodation, as a single tunnel must be $\frac{2}{3}$ the width of a double tunnel and only a very trifling degree less in height, while the cost for drainage and in this case the provision for pumping would be nearly identical. It therefore may be laid down that there is no analogy between a bridge and a tunnel. The former can easily be extended in width, the latter cannot be widened except by an independent structure. Whatever the cost of a double track, even should the theory be that for some years the double track is not indispensable, it is advisable to construct the tunnel in the first place for a double track so that it become a permanent structure not to exact future additions.

5. The tunnels of this continent require to be of larger dimensions than those hitherto constructed in Europe. This difference is owing to the increased size of the Pullman cars. Doubtless the railways of the Dominion which until lately had the 5 foot 6 inch gauge had some influence in increasing the width of the ordinary passenger car. Until the last few years 6 feet between the rails was the normal allowance. The main argument in favor of 4 foot $8\frac{1}{2}$ inch gauge lay in the fact that that width was all that was required for a locomotive of full power and that any additional width was an unnecessary expense. The 4 feet $8\frac{1}{2}$ inch has accordingly replaced the wider gauge, one of the rare instances where a design conceived in the infancy of a system has withstood every attempt to depart from it.

The change of track to the narrow gauge in no way however lessened the width of cars, and the Pullman, which in reality is nothing but a first class car, requires as much space as possible for the attractions held on this Continent to be indispensable. The present width is 10 feet 6 inches.

The Hoosac tunnel in Massachusetts is the latest work of its character. It is 4.36 miles in length. The theory on which it is constructed shews the part that it will ultimately play in the commerce of this Continent. The Railway existing between Boston and Albany is marked by somewhat sharp curves and heavy grades at portions of the line. Accordingly the passage of freight is controlled by the power of a freight engine in moving it over the extreme grades, and hence the limit imposed is much narrowed.

In the matter of the Hoosac tunnel it is claimed that the lines approaching it on either side have, generally speaking, easy grades, and that a better connection is opened out between Boston and the west by the construction of the tunnel which connects these two branches, and that the carriage of freight between Boston and Albany will be much cheapened.

The grade is 1 in 100, 52.80 to the mile, a matter of choice in the Hoosac tunnel but a matter of necessity at the River Detroit. No other difficulty has been experienced from this grade within the tunnel than is elsewhere encountered.

The dimensions of the Hoosac, the latest constructed tunnel may be said to determine the standard elsewhere. A Pullman car from Boston would thus pass to Chicago and any additional height or width must be held to be superfluous. The section submitted, although not following the same lines as the Hoosac section, has practically the same ordinates and would pass any car which the Hoosac would pass without any limitation of intervening space.

Those who have hitherto spoken of the River Detroit Tunnel, have conceived

the theory that it would be possible to bring out a grade to meet the bridge at the west of Stony Island. A section is shown of the practical effect of such a design.

The main stream is 3,650 feet wide where the river bank on the Canadian shore is 25 feet in height.

An outcrop of loose stone called Stony Island 2,500 feet across succeeds, where a channel 950 feet in width intervenes between Stony Island and Grosse Isle.

In order to reduce the length of the tunnel the opinion has been advanced that a descent can be made from the Canada shore at a grade of 1.75 in 100, and that the tunnel would follow the river bottom with a partial grade of 2 in 100 and gain the level of the railway at the present bridge between Stony Island and Grosse Isle.

I cannot myself take the responsibility of recommending those extreme grades. However desirable economy of construction, it may be too dearly purchased. I cannot but think that it would be extremely impolitic to admit any grade greater than 1 in 100 or 52.80 to the mile.

The two railways which will principally use the tunnel if constructed, the Great Western Railway and the Canada Southern Railway, have been avowedly constructed on the principle of lightness of grade and the consequent ease with which both can pass long trains of freight. If a freight train have to be taken to pieces and passed over in divisions we should soon have a block on either side. Even with a 52.80 feet grade the freight trains will require an additional engine of increased power specially detailed to meet the increased grade of the approaches.

The design submitted, consists of a descent of a 52.80 ft. grade from the Canadian side for a distance of 9,600 ft. the lowest point on the structure, where it ascends a distance of 7,000 ft. at a grade of 1 in 500. 10.56 to the mile, from which point it gains in 7,000 ft. the present grade at Grosse Isle at 52.80 ft. to the mile, thus passing under the channel between Stony Island and Grosse Isle.

The drainage will be effected by a sump at the Canada shore, the lowest level of the tunnel, which can be pumped out from a permanent pumping house on a lift under 90 feet.

Both the approaches to the tunnel will be made through cuttings for a double track, efficiently drained; the width of formation in rock cuts being 39 feet with slopes of $\frac{1}{2}$ to 1, and in clay of 49 feet with slopes $1\frac{1}{2}$ to 1.

The portals to be constructed in 75 feet of cutting on either side.

The length therefore will be,

East approach.....	7700 feet.
Tunnel proper.....	9800 “
West approach.....	6160 “

and the grades will be,

From the East descending at 52.80 per mile.....	9600 “
at 10.56 do	7000 “
ascending at 52.80 do	7060 “

The foundation, will be entirely in rock.

In the estimate which I submit, I have included the lining of the tunnel throughout. It is however possible that the brick invert may not be required, but however compact the rock itself, it would be scarcely prudent to pass under the bed of a navigable river such as the River Detroit, without protecting the crown and sides by brick work.

6. The survey was made by Mr. Michaud of my staff and occupied more than three months of constant and careful work. For 200 feet in the centre, soundings were taken on parallel lines of 5 feet, 200 feet on each side of this distance the soundings were taken on parallel lines 20 feet apart, and on 200 feet on each side

without this extent, soundings were taken on lines 40 feet apart, the object being to determine if any pockets existed, or if there was any sudden collapse of the level by which it might be inferred there would be crannies and crevices.

A diver was sent down at intervals to examine the bed of the River independently of the test of the plunger. Thus it has been clearly established what the depth is and what the character of the bottom. As before remarked it was discovered to be level rock free from boulders. The approaches were also carefully bored to determine the soil through which the tunnel and the open cutting must be taken. The work was very thoroughly performed, no point being left unexamined. It is my duty to bear testimony to the efficiency with which Mr. Michael carried it out.

7. I do not myself doubt the practicability of constructing the tunnel. There does not appear any particular contingency to guard against. On all sides it is admitted that little snow is met with at Amherstburgh, and there is but slight likelihood of the cuts being filled up.

The tunnel itself will commence at 75 feet of cutting. Should it result that the snow has to be guarded against, sheds can be constructed. The only real question is thoroughly to establish an effective system of drainage.

Surface drains in the immediate neighborhood of the cuts, will carry off the surface water entirely, so that the cut will be troubled only with water coming from the slopes and gathered within its own limits.

The scheme as shewn by the section is to carry it to a sump on the Canada side and to lift the water by a force pump. I do not anticipate difficulties from the drainage which would come from Grosse Isle and therefore no special provision has been made for a similar arrangement there, but should it be found that the water become troublesome, a force pump can be placed in position there so that scarcely any water would pass into the tunnel, except what came from crevices encountered in the work to be carried away by the centre longitudinal culvert. The extent of water to be met with during the progress of the work and the permanent discharge to be considered cannot be calculated. There is no reason however to think it would never cease to be under control. It may be said that there are few great works so free apparently from unfavorable contingencies. It is anticipated that it could be carried through to a fortunate termination with few casualties and within the calculation of its cost.

8. The cost of the work may be set down at \$3,643,000 (three million six hundred and forty-three thousand dollars.) This sum includes the tunnel and the approaches. The estimate also supposes the tunnel to be arched throughout, with brick invert. With regard to the invert it is not impossible that it may be dispensed with, but no estimate would be reliable unless it were included as being necessary. Should the brick invert be found to be unnecessary owing to the rock being firm and free from crevices, the cost of the work may be reduced \$200,000 (two hundred thousand dollars.) It is only where the work is in progress that the extent can be determined.

Full details of the works proposed with the quantities and prices are appended.

9. The period which may be calculated as necessary to complete the work may be estimated at three years. A shaft at each entrance, a shaft at Stony Island and one on the Canada shore will admit of several working parties on the tunnel proper. Three relays working night and day and the headings being followed by working parties at given distances, sufficient progress would be made for the work to be completed in the period mentioned.

It will be advisable to complete the brick lining as the work proceeds, following up the labor of the miner by that of the bricklayer as closely as possible.

I have endeavoured as far as I am able to carry out the examination entrusted to me. But it is with diffidence and a sense of their incompleteness, I submit to the Hon. the Minister the information and data which I have collected, nevertheless, I

trust my efforts will somewhat aid in establishing the practicability and probable cost of this important work, so that the project may be fairly and dispassionately considered.

I have the honor to be, Sir,
Your obedient servant,

WILLIAM KINGSFORD.
Engineer in Charge

F. BRAUN, Esq., Secretary,
Public Works Department.

RIVER DETROIT SURVEY.

OTTAWA, 26th April, 1876.

SIR,—In accordance with your instructions I have considered the passage in the annual report of the Chief of Engineers of the U. S. Army to the Secretary of War of the United States for 1875, which alludes to the Survey made by the Department in 1874 of the outcrop of rock above Amherstburgh forming a serious impediment to the navigation of the River Detroit, viz:

“That the American survey made last spring at the Lime Kiln Shoal, differs in many instances from the Canadian survey made at the same place the year before.”

The work was performed by me with great care during the summer of 1874 in accordance with the instructions received from yourself.

The manner in which the survey was made was as follows: Soundings were taken on parallel lines 10 feet apart, down the stream; the boat being left to the action of the current floated down sideways, kept in line with ranges established on Bois Blanc Island.

Instead of using a line, I took the soundings with a chain divided in feet and half feet, the lead at the end weighing from 12 to 15 pounds. Soundings were taken as quickly as they could be entered and the lead was never raised more than a foot from the bottom. In this way, the least irregularity of the bed of the River was accurately ascertained and it was scarcely possible to miss boulders or other obstructions.

Last summer, when examining the site of the proposed Railway Tunnel above Amherstburgh, we had occasion to go over a portion of the old work, and the new examination agreed with that made the previous year.

I am under the impression, however, owing to what was pointed out to me as the gauge of the American survey, that it did not agree with the datum line taken by ourselves, being more than one foot higher.

The United States Report does not set forth in what the difference in the two surveys consists. I can only add that the survey was carefully performed by me with a due sense of responsibility, and I have every reason to think that on examination it will be found to be correct.

I have the honor to be, Sir,
Your obedient Servant,

C. E. MICHAUD,
Assistant Engineer.

WILLIAM KINGSFORD, Esq., Engineer in Charge
Harbors St. Lawrence & Western Lakes.

APPENDIX No. 20.

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GENERAL STATEMENT SHOWING :

- 1st. Water Power and other Public Property leased on Canals, &c., during the year ended 30th June, 1876.
 - 2nd. Property purchased or sold by the Department, during the fiscal year.
 - 3rd. Property declared to be no longer under the control of the Department.
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GENERAL STATE

1st. Water Power and other Public Property leased on

Date.	Term of lease.	Lessees.	Property leased.	For what purpose leased.
July 5, 1875	—	Richelieu Hydraulic & Manufacturing Co.	O. C. to build 3 dams on Chambly Rapids, River Richelieu.	To create water power.
Aug. 17, "	Pleasure of Government.	Ottawa and Rideau Forwarding Co.	Wharf lot at upper entrance Chambly Canal, St. John's, P. Q.	Storing coal and wood for steamer.
Dec. 28, "	Pleasure of Government.	J. C. Pierce & Son...	Wharf at St. John's, P. Q., Chambly Canal.	Wharf and Storage
Sept. 1, 1860	20 years.	Her Majesty	Lot and house of I. M. & J. Walker, Canterbury st, St. John, N.B.	Post Office.....
July 23, 1875	Pleasure of Government.	Lake St. Francis Navigation Co.	1st. To build a shed on Basin No. 1 Lachine Canal, Montreal. 2nd. To build a wharf and shed at Valleyfield on Basin above Guard Lock, Beauharnois Canal.	Storage, &c.
Oct. 15, "	21 years renewable.	Wm. Hutchison.....	Wharf Lot E side of East Pier at Port Dalhousie, Welland Canal.	Wharf.....
— 1876	21 years renewable.	John Chaffey.....	Water Lot and Water at Chaffey's Lock, Rideau Canal, part of lot No. 17 in 8th C., S. Crosby.	Grist & Carding Mills.
Jan. 18, "	"	Daniel Delaney.....	Pt. of Rideau Canal reserve and Nichol Island (In front of lot S ₁₈ in 2d C., Nepean.)	Farming
" 18, "	"	Wm. Powell.....	" " N ₁₅ , 2d C. Nepean.	"
" 18, "	"	John Blair.....	" " E ₁₆ , "	"
Mar. 14, "	Pleasure of Government.	Hannah, widow of George Patterson.	Pt. of Rideau Canal reserve, in front of lot S ₁₆ G, Con. C., Nepean.	"
Feb. 26, "	"	Mich. Kilroe	" " N ₁₈ , 2d C., Nepean.	"
May 12, "	"	Thos. May.....	" " S ₂₃ , Gloucester.	"
" 12, "	"	D. Cameron	" " N ₂₃ , "	"
" 12, "	"	Geo. Morris.....	" " S ₁₅ , 2d C., Nepean.	"
July 19, "	"	Wm. Dawson.....	" " 3, " "	"
May 12, "	"	Thos. Paget.....	" " N ₁₄ , " "	"
" 12, "	"	Philip Kennedy.....	" " S ₁₆ , " "	"
" 12, "	"	Geo. Rickey.....	" " 1, " "	"
April 29, "	"	John Graham.....	" " N ₁₆ G, Con. C., "	"
Feb. 7, "	"	Reeve and Council of Township of Nepean	Rideau Canal Reserve, in front of lots G.H.I., Nepean.	To extend Elgin St to show grounds.
April 29, "	"	Hon. James Skead....	3 small Islands, opposite lot 33, Con. A., Nepean.	Ottawa River.....
May 14, 1867	10 years.	Her Majesty	Mary Gregg's House. Carleton St., Fredericton, N.B.	Post Office.....
April 19, '76	Pleasure of Government.	N. F. Birely & W. A. Nevills.	Pt. of Burlington Bay Canal Reserve, on the beach.	Hotel.....

MENT SHEWING

Canals &c., during the Fiscal Year ended 30th June, 1876.

Amount of water power leased.	Area of property leased.	Date from which lease is reckoned.	Annual rental.	Terms of Payment.			Remarks.
				Amount of each instalment.	When payable each year.	When 1st instalment was due.	
							Co. liable for damages, if any.
	80x80 feet.	July 1, 1875	\$100 00	\$100 00	July 1.....	At delivery of lease.	
	100x84 feet.	Jan. 1, 1876	100 00	50 00	Jan. 1, July 1..	Jan. 1, 1876	
		May 1, 1860	800 00	200 00	Aug. 1, Nov. 1, Feb. 1, May 1.	Nov. 1, 1860	Cancelled July 20, 1876
	20x12	June 4, 1875	65 00	65 00	May 1	At delivery of lease.	
	300 feet.	July 1, "	100 00	50 00	Jan. 1, July 1..	Jan. 1, 1876	
	3r 18p	Feb. 7, 1872	100 00	50 00	Jan. 1, July 1..	Jan. 1, 1874	
All the surplus water.	6 acres.	Dec. 1, 1875	6 00	6 00	December 1.....	At delivery of lease.	
	11 "	"	11 00	11 00	"	"	
	10 "	"	10 00	10 00	"	"	
	4 1/2 "	Jan. 1, 1876	13 50	13 50	January 1.....	Jan. 1, 1876	
	11 "	"	11 00	11 00	"	"	
	4 "	"	3 00	3 00	"	"	
	3 "	"	2 75	2 75	"	"	
	13 "	"	9 75	9 75	"	"	
	30 "	"	22 50	22 50	"	"	
	15 "	"	11 25	11 25	"	"	
	11 "	"	8 25	8 25	"	"	
	5 "	"	3 75	3 75	"	"	
	0.40 rps	"	1 00	1 00	May 1.....	May 1, 1876	
	56x1 chains.	Feb. 1, "	Free.				
	11a 3r 14p	May 1, "	24 00	24 00	May 1	On delivery of lease.	
		May 1, 1866	240 00	60 00	Aug. 1, Nov. 1, Feb. 1 May 1.	Aug. 1, 1866	
		Jan. 1, 1876	100 00	100 00	January 1.....	Jan. 1, 1876	

2nd.—Property purchased or sold by the Department during the Fiscal Year ended 30th June, 1876.

Date.	Vendors.	Purchasers.	Property purchased or sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
Aug. 17, 1875.	Caroline A. Hart	Her Majesty	Part of Isle aux Cochons, mouth of River St. Maurice.	Boomage, &c.	12 arpents.	\$ 1,214 00	These lots are vested in Her Majesty, as per report of Master in Chancery of Ontario, at St. Catharines.
March 4, 1875.	re J. R. R. Secord	do	Part of lots 6, 7, 8 in 9th Con., Grantham, Welland Canal.	Enlargement	17.66 } 4.86 }	3,827 28	
"	re Rev. T. B. Fuller	do	Part of lot 6 in 10th Con., Grantham, Welland Canal.	do	32.81	4,120 60	
"	re Calvin Brown	do	Part of lot 19 in 3rd Con., Grantham, Welland Canal.	do	6.00	1,421 40	
"	re John H. Wilson	do	Part of lot 15 in Township of Thorold or 27 in Village of Thorold, Welland Canal	do	0.10	123 60	
"	re J. Calcott	do	Part of lot 15 in Township of Thorold or 26 in Village of Thorold, Welland Canal.	do	0.08	61 80	
"	re Elizabeth Price	do	Part of lots 6, 7 in 9th Con., Grantham, Welland Canal.	do	51.60	6,809 24	
March 24, 1875.	re J. & A. Coulter	do	Part of lot 186, Township of Thorold, Welland Canal.	do	15.50	1,357 03	
"	do	do	Part of lot 203, Township Thorold, Welland Canal.	do	3.50	306 43	
March 4 1875.	re P. Hoover & M. Crawford	do	Part of lot 15, Township Thorold, Welland Canal.	do	32.31	4,846 46	
Dec. 18, 1875.	J. R. R. Secord	do	Release for damages to crops, &c. on lots 7, 8 in 9th Con., Grantham, Welland Canal.	do		66 00	
"	Geo Holder	do	Release for damages to crops, &c. on lot 7, in 9th Con., Grantham, Welland Canal.	do		60 00	
July 28, 1874.	Rev. T. B. Fuller	do	Part of lot 14 in 5th Con., Grantham, Welland Canal.	do	14.20	3,575 00	
June 16, 1874.	Lewis Traver et ux	do	Part of lot 11 in 7th Con. (N.W. and N.E. angles of lot) Grantham, Welland Canal.	do	37.00	5 00	
Aug. 4, 1874.	Synod of Diocese of Toronto & Rev. T. B. Fuller	do	Part 6 in Township of Thorold (St. Peter's Church lot, or old German Church), Welland Canal.	do	0.50	800 00	

Date	Party	Description	Area	Value	Remarks
June 23, 1874	Peter A. Coons et ux, et al, Children and Grandchildren of C. May	Part of lots 20, 21, 22 in 2nd Con., Grantham, May Estate, Welland Canal.	18,050 00	90-25	
Dec. 21, 1874	Wm. M. Hendershot et ux	Part of lot 15, Township of Thorold, (or G. H. I. Village of Thorold) Welland Canal.	600 00	0-97	
Jan. 21, 1875	Samuel Frazer et ux	Part of lot 26 in 7th Con., Crowland, Welland Canal.	927 40	13-54	
Jan. 18, 1876	J. W. Hagar et ux	Part of lots 223, 224, Township of Thorold, Welland Canal.	1,096 00	10-96	
"	Jonathan Hagar et ux	Part of lot 223, Township of Thorold, broken front, Welland Canal.	137 00	1-37	
Jan. 3, 1876	W. E. Nelles et ux	Part of lot 15 in 4th Con., Grantham, Welland Canal.	150 00	1-00	
Jan. 5, 1876	Rev. T. B. Fuller et ux	Part of lots 5, 6, 3 in Thorold and 7 in 10th Con., Grantham, Welland Canal.	1,000 00	4-54	
Jan. 10, 1876	John Brown	Part of lots 28, 29 in Thorold (near Marlatt's Pond) Welland Canal.	4,575 00	34-18	
Jan. 19, 1876	do	Part of lot 1 in Gore, Thorold, Welland Canal.	750 00	0-75	
Dec. 31, 1875	do	Part of lot 5 in 10th Con., Grantham, Welland Canal.	3,850 32	31-56	
Dec. 30, 1875	do	Part of lot 4 in Gore, Thorold, Welland Canal.	3,682 80	33-48	
Dec. 31, 1875	do	Part of lot 1 in Gore, Thorold, (2 portions) Welland Canal.	2,039 90	18-09	and \$100 for timber and \$50 for damages.
Nov. 30, 1875	do	Part of lot 15 in township of Thorold, Welland Canal.	400 00	1-00	
Dec. 31, 1875	do	Part of lot N 23 in 5th Con., Humberstone, Welland Canal.	551 25	6-35	
Jan. 22, 1876	George May et ux	Part of lot 20 in 3rd Con., Grantham, Welland Canal.	1,680 00	10-00	
Dec. 1, 1875	Wm. Bryant et al.	Part of lots 5, 6 (or lot 10 in 7th C) Grantham (Subdivision of lot 10) Welland Canal.	535 50	2-38	
Feb. 17, 1876	Eliz. Man, guardian of her 2 children	Part of lot 222 in township of Thorold, Welland Canal.	1,067 00	10-57	
Jan. 31, 1875	Executors of late Robert Elliott... Catherine Silverthorne	Part of lot 215 in township of Thorold, Welland Canal.	490 00	4-90	
"	do	Part of lot 229 in township of Thorold, (road allowance deducted) Welland Canal.	1,163 00	11-63	
Feb. 12, 1876	Wm. H. Bell et ux	Part of lot 213 in township of Thorold, (1 acre reserved for Burial ground) Welland Canal.	590 00	5-90	
Jan. 5, 1876	B. Tucker et ux	Part of lot N 23 in 5th Con., Humberstone, Welland Canal.	395 25	5-27	

2nd.—Property purchased or sold by the Department, &c.—Continued.

Date.	Vendors.	Purchasers.	Property purchased or sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
Jan. 31, 1876.	P. Dewar <i>et ux.</i>	Her Majesty	Part of lot 203, Thorold, Welland Canal.....	Enlargement...	acres, toobhs. 0-99	\$ cts. 573 50	
Jan. 22, 1876.	Calvin Brown.....	do	Release, damages to lot 19 in 3rd Con., Grantham, crops and fences, Welland Canal.	do		120 00	
March 10, 1876.	Jas. Silverthorn <i>et ux.</i>	do	Part of lot 229 and broken front Thorold, on River Chippewa, Welland Canal.	do	11-80	2,200 00	0-38 ac. for road, excepted.
"	do	do	Part of lot 238 and broken front Thorold, on River Chippewa, Welland Canal.	do	8-14	2,200 00	0-38 ac. do
Feb. 25, 1876.	Mary M. Boyle.....	do	Part of lot 238 and broken front Thorold, on River Chippewa, Welland Canal.	do	0-25	300 00	
March 24, 1876.	Geo. R. E. Bargar.	do	Part of lot 238 and br. front corner S. of his farm lot, Thorold, on River Chippewa, Welland Canal.	do	13-87	1,311 00	0-56 ac. do
March 9, 1876.	H. Caneff <i>et ux.</i>	do	Part of lot 238 and br. front Thorold, on River Chippewa, Welland Canal.	do	3-75	4,053 00	0-56 ac. do
June 8, 1874.	Priscilla Bessey.....	do	Part of lots 9, 10 in 8th Con., Grantham, Welland Canal.	do	22-50	2,250 00	0-18 ac. for burial ground excepted.
April 23, 1875.	Rebecca Batten <i>et al.</i>	do	Part of lot 28 in 8th Con., Thorold, Welland Canal.	do	12-50	1,600 00	
Jan. 23, 1875.	W. H. Nelles <i>et ux.</i>	do	Part of lot 15 in 4th Con., Grantham, Welland Canal.	do	0-07	100 00	
Feb. 18, 1875.	J. A. Wilson <i>et ux.</i>	do	Part of lot 16 in 4th Con., Grantham, Welland Canal.	do	5-00	2,250 00	
Feb. 24, 1875.	R. T. Carwithen...	do	Part of lot 15 in 5th Con., Grantham, or lot, 12 Potter's Plan of 6, 7, 8 range 2 Bolls Welland Canal.	do	0-13	150 00	
Nov. 19, 1874.	T. Robertson <i>et ux.</i>	do	Part of lot 143, Thorold, Welland Canal.....	do	16-47	1,542 60	
June 28, 1875.	Trustees German Church Burial Ground.....	do	Part of lot 6, Thorold, (Burial ground) Welland Canal.	do	0-28	200 00	
Feb. 29, 1876.	W. F. & C. D. Se-cord.....	do	Right to overflow lots 18, 19 in 8th and 9th Con., Grantham by Twelve Mile Creek for Welland Canal.	Higging's waste weir...	{ 3-58 } { 0-31 }	700 00	And release for past damages.

Date	Applicant	Description of Case	Particulars	Area	Value	Remarks
May 8, 1876.	Corporation Thoroold Township... Sylvester Neelon et ux.	do	Part of lot 229 and of road between 239 and Enlargement... 238 Thorold, Welland Canal.	6-82	682 00	
"	"	do	Part of lot 21, in 1st Con., Grantham, (Andrews Dry Dock), Welland Canal.	2-70	24,000 00	
March 29, 1875.	Executors and Executors of D. Murray. Herbert Harris et ux.	do	Lots 13, 14, 16 and part 16 (E. Salters Estate) Upper Water St., Halifax, Intercolonial Railway.	Halifax extension	12,150 00	And right of way to Mumford Terrace, 9' 6".
April 14, 1875.	Herbert Harris et ux.	do	Lots 19, 20, 21, 29, 30, 31, (E. Salters Estate) Upper Water St., Halifax, Intercolonial Railway.	do	25,000 00	
Oct. 20, 1874.	Thos. Revell et ux.	do	Lot between Estate D. Rugg and White, Upper Water St., Halifax, Intercolonial Railway.	do	3,200 00	
Nov. 12, 1874.	E. White et ux.	do	Lot near Naval Hospital, Upper Water St., Halifax, Intercolonial Railway.	do	2,000 00	
Feb. 26, 1875.	F. W. Fishwick et ux.	do	Lots 36, 37 corner of Sawyer and Harvey streets, (Salter Estate) 17, 18, 46, 45, 44, 43, part 42 on Water St. (Salter Estate), Halifax, Intercolonial Railway.	25' 10" x 123' 6"	20,000 00	And right of way to Mumford Terrace, 9' 6".
Aug. 18, 1875.	Alex. Cameron...	do	Release, personal injury in Dec. 1871 falling down the hatchway of Governm't Ferry Boat, Pictou, N. S., Intercolonial Railway.	Damages	100 00	
Aug. 26, 1875.	Geo. Rayne.....	do	Release, loss of a mud flat, at McCurdy's tunnel, near lot 244, at Onslow, N. S., Intercolonial Railway.	do	200 00	
Oct. 27, 1875.	Her Majesty	Andr. O'Leary..	Strip of land on Brussels street, no longer required for Intercolonial Railway.	99' 6" x 25' x 102' x 6"	Release of claim for damages.	
Jan. 25, 1875.	Andrew O'Leary.....	Her Majesty.....	Release, damages to adjoining land, Intercolonial Railway.	Damages	Land above granted.	
Dec. 6, 1875.	Her Majesty	The Chatham Branch Railway Co.	Government to lend them for 6 months, and 900 tons of iron rails, with chairs, fittings and spikes, which were taken out of the opened line of Intercolonial Railway and replaced by steel rails.	To complete their branch from junction of Intercolonial Railway to Chatham, N. B.	Price to be agreed upon or fixed by arbiters.	
Aug. 19, 1875.	J. E. B. McCready et ux.....	Her Majesty.....	Part of his interval land at Fenobosquis, N. B., along River Kennebecassis, taken for European and North American Railway.	Intercolonial Railway.	3,000 00	
"	Caleb McCready et ux.	do	Do (and bridge) do do	do	2,500 00	
"	Elias S. Frieze et ux.	do	Do do do do	do	3,600 00	
Aug. 17, 1875.	Thos. J. Bently et ux.	do	Land on E. side of Low street, Halifax, N. S.	do	5,150 00	14,450 sq. feet
July 1, 1875.	Chas. A. Hawkins et ux.....	do	Do S.W. corner of Young and Renforth streets, Halifax, N. S.	do	2,275 00	6,000 do

2nd.—Property purchased or sold by Department, &c.—Continued.

Date.	Vendors.	Purchasers.	Property purchased or sold.	For what purpose used.	Area of land.	Price of sale.	Remarks.
Aug. 13, 1875.	Bartholom. Walsh <i>et ux.</i>	Her Majesty	Land along Northern limit of City, Halifax, N.S.	Intercolonial Railway.	5,220 sq. feet.....	\$ cts. 1,566 00	
Aug. 19, 1875.	Christiana Ross	do	Release damages to land in Truro, on Leper Road, N.S., caused by Intercolonial R'y.	do	11 acres.....	2,300 00	
Aug. 23, 1875.	Oliver Fillmore	do	Part of lot No. 2 at River Philip, N.S., and damages to adjoining land.	do	acres—roths. 12.63	200 00	
—	Her Majesty	J. & W. Sproule.	Strip of land near Pictou Landing, at Fishers' Grant, N.S., between Wm. Scott and Chas. Ives, not required for Intercol. R'y.	do	1.24	54 38	
"	do	J. Ferguson	Do between Geo. & Widow Christie and P. Foster	do	3.35	89 96	
"	do	J. Graham	Do do A. W. Tanner and Railway	do	2.54	89 84	
"	do	P. Foster	Do do J. Ferguson and M. G. Sproule	do	4.37	73 69	
"	do	D. McArthur	Do do Wm. Powell and Railway, do	do	2.75	20 87	
"	do	C. Dwyer, admn- istrator of Wm. Powell.	Do do Chas. Ives and D. McArthur, do	do	1.01	14 07	
"	do	M. G. Sproule	Do do P. Foster and J. Foster, J. & W. Sproule and Wm. Powell,	do	1.57	56 72	
"	do	Wm. Ives	Do do M. G. Sproule and A. McPherson,	do	2.00	28 46	
"	do	J. Foster	Do do J. T. Fraser and Railway, A. W. Tanner and J. Ferguson,	do	4.60	138 66	
"	do	W. & J. E. Ives	Do do A. W. Tanner and Geo. Christie <i>et al</i> ,	do	1.69	14 06	
"	do	Wid. and Heirs Geo. Christie.	Do do J. McPherson and Wm. Scott,	do	3.50	96 66	
"	do	A. W. Tanner	Do do T. McPherson and J. W. Sproule,	do	1.63	34 08	
"	do	T. McPherson	Do do	do	0.68	13 36	
"	do	Wm. Scott	Do do	do	1.30	23 29	
Nov. 2, 1875.	Local Government P. E. Island.	Her Majesty	List plans and deeds of Dominion Property, Charlottetown, Prince Edward Island.	P. E. Island	.....	.....

Date	Party	Description	Area	Value
Oct. 3, 1875.	Thos. Keays et ux.	Part of lot at Souris, Kings County, on road to East Point, Prince Edward Island.	1 00	300 00
Dec. 6, 1875.	S. S. Scovill et ux.	Release, damages to lots 4 and 5, Portland Village, E. Water street, lots 3, 4, 5, 6, 7, 8, 10, 11, 12, Portland Village, W. Water street, being parts of lots 19 and 20, in 2nd Con. Bastard, Rideau Canal.	1/4 acre.	250 00
Dec. 23, 1875.	Peter Niddo et ux.	East part lot 28, in 3rd Con., Hinchinbrooke, Rideau Canal and release of damages.	50 acres.....	130 00
Dec. 11, 1875.	Alex. McGinnes et ux.	Lot No. 1, in Con. Olden, covered by waters, Rideau Canal	.....	200 00
June 17, 1875.	Wm. Simons.....	Bill of Sale of Hopper Dredger St. Lawrence, now at Halifax, N. S.	.....	£19,600 00
Feb. 5, 1876.	Her Majesty.....	Exchange of lots, part No. 1, west ward, Common Street, Montreal.	.....	Sterling.
"	do	Sale of part of lots do do	.....	{ 113 60 Principal.
Feb. 3, 1875.	do	do do do	.....	{ 52 81 Interest.
Oct. 20, 1874.	T. Cramp et al.	The Crystal Palace building, on Cathedral block, Montreal, (lot owned by them).	.....	{ 5,296 80 Principal.
July 3, 1875.	Hon. A. J. White Her Majesty.....	Lot on N. E. side of Great George Street, Sydney, Cape Breton, N. S. (site).	3.75 do	{ 2,533 91 Interest.
April 27, 1876.	J. C. McLagan et ux.	Part of lot 54 in Canada Co's Survey of lot 20 in J. Macdonald survey of lot B, town of Guelph.	.....	53,975 00
		Post Office Custom House & Excise.	.....	2,600 00
		Marine Hospital.	.....	800 00
		Offices, &c.....	.....	4,000 00
		To widen &c., Common St... }	.....

3rd.—Public Property declared to be no longer under the control of this Department, or transferred, during the fiscal year ended 30th June, 1876.

Date of Order in Council.	Published in the Canada Gazette.		Property.	To whom abandoned or transferred.	Remarks.
	At page	Year			
May 26, 1876.	.....	.....	Wharf at St. Alphonse de Bagotville, River Saguenay, P. Q.	Municipal Council of Bagotville.....	Transferred.
May 6, 1876.	1536	1876	Bridge over Timber Slides and Buchanan Channel of River Ottawa, Ottawa City, Ont.....	Municipal Council of Ottawa.....	Abandoned, from 20th May 1876.
May 20, 1876.	1537	.....	Lots of land and building at Victoria, New Westminster, Nanaimo, Hope, Yale, Lytton, Lilloet, Quesnel, Richfield, Barkerville, Van Winkle and Longley, in British Columbia.....	Government of British Columbia.....	Transferred.
June 14, 1876.	.....	.....	Deschênes Rapids Slide, River Ottawa.....	.....	Abandoned.

OTTAWA, 24th October, 1876

H. A. FISSIAULT.

APPENDIX No 21.

STATEMENT of claims referred to and awarded upon by the Official Arbitrators during the fiscal year ended 30th June, 1876.

Claimant.	Subject of claim.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Theophile Letendre.....	Land taken for lighthouse, Lapierre Island.....	30th March, 1875.	\$ cts. 100 per arpent.	\$75 per arpent.	21st June, '76	This case was tried and adjudicated upon by one arbitrator only.
Berard & Cardin.....	do do	do	do	do	do	do
M. McIlreith.....	Land taken at Halifax, for Intercolonial Railway.....	10th June, 1875.	2,691 00 Nil.	Nil.	24th Dec., '75	These three cases were referred for reconsideration by three of the arbitrators.
George Rochester.....	Ottawa River Works.....	10th Sept., 1875.	2,946 10 Nil.	Nil.	do	
C. J. & D. McFarlane.....	do do	do	1,198 00 Nil.	Nil.	do	
Mayhew & Faichney.....	Ash Island, Richelieu River.....	11th Dec., 1875.	150 00	150 00	Referred by the Department of Marine and Fisheries and withdrawn by them 21st February, 1876.
Robert Kemp.....	Land taken for Lachine Canal.....	23rd May, 1876.	5,486 32	Referred by the Department of Marine and Fisheries.
James S. Evans.....	do do	do	24,410 00	.....	.....
Charles Esplin.....	do do	do	16,210 00	.....	.....
Theophile Gatiépy.....	do do	do	.....	.....	.....
Edward Wilgress.....	Land taken for lighthouse, Wolfe Island, Lake Ontario.....	26th May, 1876.	Referred by the Department of Marine and Fisheries.
Mrs. Wm. Brophy.....	do do	do	.....	.....	.....
J. B. Pouliot.....	Land damages, Section No. 1 Intercolonial Railway.....	8th June, 1876.	500 00	500 00	Referred by the Department of Marine and Fisheries.
J. B. Chamberland.....	do do	do	150 00	150 00	.....
Désiré Nadeau.....	do do	do	155 00	155 00	.....
Alexis Nadeau.....	do do	do	185 00	185 00	.....
Michel Legasé.....	do do	do	320 00	320 00	.....
Aristobule Gagnon.....	do do	do	10 00	10 00	.....
Jean Bérubé.....	do do	do	1,536 67	1,536 67	.....
J.-Ste. Pelletier.....	do do	do	60 00	60 00	.....
Joseph Chassé.....	do do	do	1,095 33	1,095 33	.....
Louis Bérubé.....	do do	do	1,040 00	1,040 00	.....
Widow Maxime Chassé.....	do do	do	2,166 67	2,166 67	.....
Jacques Ponnée.....	do do	do	1,653 33	1,653 33	.....

APPENDIX No. 21—Statement of claims referred to and awarded upon by the Official Arbitrators.—Continued.

Claimant.	Subject of claims.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Félix Gagnon.....	Land damages, Section No. 1 Intercolonial Railway.....	8th June, 1876..	\$ cts. 2,166 67			
François Bérubé.....	do	do	1,570 00			
Paul Bélanger.....	do	do	150 00			
Georges Desjardins.....	do	do	215 00			
Joseph Gagnon.....	do	do	100 00			
François Vaillancourt.....	do	do	200 00			
Urbain Dumont.....	do	do	400 00			
Pierre Martin.....	do	do	2,416 66			
George Saindon.....	do	do	269 99			
Félix Saindon.....	do	do	20 00			
Pierre Dumont.....	do	do	226 67			
Isaac Gagnon.....	do	do	875 34			
J. B. Côté.....	do	do	276 67			
J. Bte. Dumont.....	do	do	151 65			
Edouard Côté.....	do	do	100 00			
Pierre Saindon and heirs.....	do	do	120 00			
Marcel LeBel.....	do	do	70 00			
Henri Brillant.....	do	do	40 00			
Pierre Brillant.....	do	do	30 00			
J. Bte. Pelletier.....	do	do	100 00			
Widow N. Caron.....	do	do	250 00			
Basile Côté.....	do	do	60 00			
Joseph Dédé Gagnon.....	do	do	100 00			
Adolphe Dionne.....	do	do	240 00			
Xavier Dufour.....	do	do	290 00			
Joseph Gagnon.....	do	do	300 00			
Georges Dionne.....	do	do	806 67			
Hippolyte Lapointe.....	do	do	216 66			
Élie Mailloux.....	do	do	150 00			
Adolphe Dufour.....	do	do	50 00			
Norbert Demeule.....	do	do	750 00			
Cyprien Soucy.....	do	do	50 00			
Joseph Malenfant.....	do	do	750 00			
Marcel Garneau.....	do	do	400 00			
Damas Lucas.....	do	do	600 00			
Charles Pelletier.....	do	do	450 00			

Charles Bertrand.....	do				800 00	
J. Bte. Marquis.....	do				500 00	
Guillaume Simard.....	do				300 00	
Joseph Chenard.....	do				300 00	
Marcel Talbot.....	do				175 00	
Joseph Caron.....	do				150 00	
Theophile Levasseur.....	do				300 00	
Joseph St. Pierre.....	do				200 00	
Jude Ouellet.....	do				400 00	
Frs. Ouellet.....	do				200 00	
Hilaire Dubé.....	do				413 00	
Joseph Paré.....	do				200 00	
Amable Ouellet.....	do				200 00	
David Dumont.....	do				100 00	
Joseph Routeau.....	do				220 00	
Widow N. Bertrand.....	do				400 00	
L. A. Bertrand.....	do				100 00	
Jean Labrie.....	do				933 34	
Widow Wm. Irvine.....	do				124 00	
Hubert Deisle.....	do			8th June, 1876	32 00	
Land damages, Section No. 2 Intercontinental Railway.....						
Cyrille Leclerc.....	do				50 00	
Ignace Rioux.....	do				136 00	
Widow G. Drapeau.....	do				250 00	
Hypolite Lebel.....	do				100 00	
Emile Lebel.....	do				740 00	
Anselme Métayer.....	do				880 00	
J. Bte. Métayer.....	do				55 00	
Anselme Rioux.....	do				300 00	
Eugène Godbout.....	do				60 00	
Eugène Leblond.....	do				40 00	
Paul Gagnon.....	do				30 00	
Pascal Beaubien.....	do				110 00	
Joseph Leblond.....	do				40 00	
Ugère Dion.....	do				80 00	
Solomon Dion.....	do				18 00	
J. Bte. Leblond.....	do				60 00	
Theophile Bélanger.....	do				844 95	
Joseph Rioux.....	do				100 00	
J. Bte. Soucy.....	do				100 00	
Julien Rioux.....	do				5,083 34	
Urbain Rioux.....	do				200 00	
Theophile Rioux.....	do					
Gonzague Renouf.....	do				160 00	
Magloire Dubé.....	do					
Cyprien Renouf.....	do				500 00	
Eloi Rioux, junior.....	do					
Napoléon Rioux.....	do				146 67 1/2	

APPENDIX No. 1—Statement of claims referred to awarded upon by the Official Arbitrators.—Continued.

Claimant.	Subject of claim.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Sephrin & Geo. Caron.....	Land damages, Section No. 2 Intercolonial Railway.....	8th June, 1876	\$ cts.			
David Damour.....	do	do	748 00			
J. Ete. Dechéne.....	do	do	400 00			
Charles Damour.....	do	do	300 00			
Hilaire Damour.....	do	do	50 00			
Léon St. Laurent.....	do	do	300 00			
Joseph St. Laurent.....	do	do	110 00			
Antoine Dufour.....	do	do	170 00			
Firmin Rioux.....	do	do	400 00			
Joseph Rioux.....	do	do	80 00			
Eloi Rioux.....	do	do	200 00			
Pierre Charest.....	do	do	120 00			
Paul Turcotte.....	do	do	200 00			
Maximin Lavivée.....	do	do	200 00			
Joseph Levesque.....	do	do	85 00			
Jean Ouellette.....	do	do	300 00			
Widow Olivier Bélanger.....	do	do	130 00			
Josephat Bélanger.....	do	do	136 00			
Joseph Bélanger.....	do	do	800 00			
Olivier Bélanger.....	do	do	812 00			
Hilaire Fortin.....	do	do	800 00			
Théophile Bélanger.....	do	do	800 00			
Magloire Bélanger.....	do	do	166 00			
Pierre Jean.....	do	do	175 00			
Hilaire Cloutier.....	do	do	300 00			
Joseph Roy.....	do	do	200 00			
Pierre Bérubé.....	do	do	150 00			
Magloire Danjou.....	do	do	215 00			
Paul Fournier.....	do	do	50 00			
Michel Bérubé.....	do	do	295 00			
Gabriel Thibeault.....	do	do	270 00			
David Fournier.....	do	do	30 00			
Louis Jacques Caron.....	do	do	75 00			
Stanislas Bélanger.....	do	do	303 00			
Jean Bélanger.....	do	do				
Louis Gauvin.....	do	do				

<i>Eusèbe Pelletier</i>	do				
<i>Abraham Théberge</i>	do				
<i>Noël Gagnon</i>	do		100 00		
<i>Joseph Coulombe</i>	do				
<i>Théophile Théberge</i>	do				
<i>Cyrille Bélanger</i>	do		56 00		
<i>Samuel Caron</i>	do				
<i>Joseph Coulombe, Junior</i>	do				
<i>Irénée Bélanger</i>	do				
<i>Chrysologue Thibault</i>	do				
<i>Narcisse Lemieux</i>	do				
<i>Widow Ezéchias Levesque</i>	do				
<i>Antoine Bélanger</i>	do				
<i>Philippe Théberge</i>	do				
<i>Wilfred Gauvin</i>	do				
<i>George Gauvin</i>	do				
<i>J.-Bte. Bélanger</i>	do		50 00		
<i>Théophile Bélanger</i>	do		80 00		
<i>Marcel Théberge</i>	do				
<i>Joseph Gagnon</i>	do				
<i>Widow Pierre Garant</i>	do				
<i>Jacques Bélanger</i>	do				
<i>Abraham Ouellette</i>	do				
Land damages, Section No. 5 Intercontinental Railway..... 8th June, 1876.					
<i>David Ouellette</i>	do				
<i>Olivier Gagnon</i>	do				
<i>Joseph Bélanger</i>	do		32 00		
<i>Ephrem Bélanger</i>	do		25 00		
<i>Valer Bélanger</i>	do				
<i>Joseph Fournier</i>	do		12 00		
<i>Epiphane Bélanger</i>	do		20 00		
<i>Edouard Gagnon</i>	do		20 00		
<i>Pierre Morais</i>	do		55 00		
<i>John Deguise</i>	do		12 00		
<i>Bruno Fortin</i>	do		20 00		
<i>Cyriac Dastous</i>	do		15 00		
<i>Théodule Levesque</i>	do		100 00		
<i>Octave Thibault</i>	do		20 00		
<i>Bruno Lizotte</i>	do		60 00		
<i>Hilaire Fournier</i>	do		100 00		
<i>Pierre Coulombe</i>	do		40 00		
<i>Romain Bérubé</i>	do		40 00		
<i>Joseph Bélanger</i>	do		1,653 33		
<i>Pierre Coulombe</i>	do		90 00		
<i>Widow Chs. Bélanger</i>	do		40 00		
<i>Fabien Bélanger</i>	do		40 00		
<i>Napoléon Gaudreau</i>	do		275 00		
<i>Octave Morin</i>	do		645 00		

APPENDIX NO. 21.—Statement of claims referred to and awarded upon by the Official Arbitrators—Continued.

Claimant.	Subject of claim.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Zéphirin Albert.....	Land damages, Section No. 5 Intercontinental Railway.....	8th June, 1876	\$ cts.			
Charles Coulombe.....	do	do	380 00			
Joseph Desjardins.....	do	do	252 00			
Noël Fortin.....	do	do	185 00			
Louis Fortin.....	do	do	52 00			
Octave Héribé.....	do	do	270 00			
Élie Gagnon.....	do	do	156 33			
Louis Gagnon.....	do	do	10 00			
George Gagnon.....	do	do	240 00			
Élie Gagnon.....	do	do	5 00			
Nicolas Leclerc.....	do	do	10 70			
Zéphirin Dastous.....	do	do	1,378 33			
Achille Côté.....	do	do	345 33			
Joseph Berger.....	do	do	330 00			
Olivier Roy dit Desjardins.....	do	do	225 00			
Thadée Roy dit Desjardins.....	do	do	557 00			
Marcel Rioux.....	do	do	188 00			
Fabien Ouellette.....	do	do	340 00			
Agapit Bélanger.....	do	do	215 00			
Romuald Gagnon.....	do	do	17 00			
Joseph Danjou.....	do	do	30 00			
Adolphe Gagnon.....	do	do	1,250 00			
Vital Roy dit Lauzon.....	do	do	525 00			
Desiré Bélanger.....	do	do	795 00			
Mrs. Françoise Fortin.....	do	do	834 00			
Pascal Roy dit Lauzon.....	do	do	200 00			
Vincent Rioux.....	do	do	600 00			
Theophile Boulanger.....	do	do	550 00			
Charles Beaulieu.....	do	do	550 00			
Antoine Boucher.....	do	do	400 00			
Magloire Boucher.....	do	do	420 00			
Hyppolite Martel.....	do	do	500 00			
Louis Demeule.....	do	do	216 00			
Abraham Gagnon.....	do	do	372 00			
Fabien Coulombe.....	do	do	235 00			
Euloge Rioux.....	do	do	105 00			
			1,016 68			

Sifrol Gagnon.....	do	594 00
Octave Boulanger.....	do	140 00
Boniface Côté.....	do	143 00
Magloire Gagné.....	do	513 00
Joseph Lévesque.....	do	300 00
Elzéar Gagnon.....	do	307 00
J. B. Michaud.....	do	100 00
Cyrille Larrivée.....	do	218 00
Joseph Roy dit Lauzon.....	do	290 00
Cyprien Turcotte.....	do	212 00
Raphaël Rioux.....	do	300 00
Jules Rioux.....	do	300 00
Vincent Rioux.....	do	120 00
Augustin Deschênes.....	do	100 00
Zacharie Canuel.....	do	100 00
Marie Gagné, wife of Lucien Bélangier.....	do	160 00
Cyprien Damour.....	do	400 00
Etienne Michaud.....	do	308 00
Damase Morin.....	do	150 00
Charles Morin.....	do	220 00
Thomas Gendreau.....	do	150 00
Samuel Pelletier.....	do	500 00
Abraham Morin.....	do	340 00
Théophile Michaud, fils de Magloire.....	do	100 00
Marie Gagné, widow of Baptiste.....	do	100 00
Joseph Côté.....	do	120 00
Alex. Côté.....	do	18 00
André Côté.....	do	350 00
Théophile Michaud, fils de François.....	do	25 00
Widow F. Boucher.....	do	75 00
Séverin Thibault.....	do	245 00
Pierre Picard.....	do	50 00
Louis Rioux.....	do	40 00
J. B. Michaud.....	do	525 00
Jean Côté.....	do	50 00
Olivier Michaud.....	do	446 00
Joseph Lévesque.....	do	325 00
Firmin Guerrette.....	do	50 00
Félix Guerrette.....	do	50 00
Charles Gagnon.....	do	636 00
Magloire Gagné (now George Doucet).....	do	50 00
Antoine Roy.....	do	100 00
Laurent Desrosiers.....	do	150 00
Ambroise Voyer.....	do	185 00

APPENDIX No. 21—Statement of claims referred to and awarded upon by the Official Arbitrators.—Continued.

Claimant.	Subject of claim.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Stanislas Brillant.....	Land damages, Section No. 5 Intercontinental Railway.....	8th June, 1876.	\$ cis. 280 00	.....	.....	.....
Ferdinand Bernard.....	do	do	100 00	.....	.....	.....
J. B. Lafrance.....	do	do	.....	.....	.....	.....
Théophile Coutare.....	do	do	25 00	.....	.....	.....
Joseph Bernier or Joseph Lamarre.....	do	do	300 00	.....	.....	.....
Joseph Bérubé.....	do	do	430 06	.....	.....	.....
André Morin.....	do	do	100 00	.....	.....	.....
Joseph Rioux.....	do	do	150 00	.....	.....	.....
Widow Ohs. Longchamps.....	do	do	50 00	.....	.....	.....
Hector Bérubé.....	do	do	140 00	.....	.....	.....
Antoine Charest.....	do	do	80 00	.....	.....	.....
Octave Rioux.....	do	do	375 00	.....	.....	.....
Julie Gagné.....	do	do	450 00	.....	.....	.....
Majorique Rioux.....	do	do	150 00	.....	.....	.....
Widow Talbot.....	do	do	150 00	.....	.....	.....
L. R. Gauvreau.....	do	do	125 00	.....	.....	.....
Arthur Chamberland.....	do	do	125 00	.....	.....	.....
William Chamberland.....	do	do	200 00	.....	.....	.....
Fabrique of Bic.....	do	do	25 00	.....	.....	.....
Fortunat Côté.....	do	do	100 00	.....	.....	.....
George Sylvain.....	do	do	400 00	.....	.....	.....
Pierre Santerre.....	do	do	250 00	.....	.....	.....
Charles Lavoie.....	do	do	275 00	.....	.....	.....
François Beaulieu.....	do	do	80 00	.....	.....	.....
Isaac Campbell.....	do	do	100 00	.....	.....	.....
Edouard Voyer.....	do	do	100 00	.....	.....	.....
Alfred Ouellette.....	do	do	500 00	.....	.....	.....
Pierre Ouellette.....	do	do	220 00	.....	.....	.....
Nazaire Ouellette.....	do	do	400 00	.....	.....	.....
George Lavoie.....	do	do	164 00	.....	.....	.....
W. D. Campbell.....	do	do	74 00	.....	.....	.....
Henri Plourde.....	do	do	50 00	.....	.....	.....
André Ouellette.....	do	do	50 00	.....	.....	.....
Louis Lavoie.....	do	do	150 00	.....	.....	.....
Martial Labrie.....	do	do	.....	.....	.....	.....

François Parent	do	448 00	do
Octave Brilliant.....	do	280 00	do
Joseph Pineau.....	do	100 00	do
Alex. Desjardins	do	200 00	do
Jean Gagnon.....	do	40 00	do
Henri Gagnon.....	do	1,100 00	do
Pierre Gagnon.....	do	150 00	do
Jerome Turcotte.....	do	100 00	do
Joseph Dubé.....	do	1,165 00	do
Timotheé Pineau.....	do	50 00	do
Casimir Pineau.....	do	666 67	do
Eustache Roy.....	do	400 00	do
Widow A. Bradley.....	do	.....	do
Alex. Fraser.....	do	675 00	do
Norbert Roussel.....	do	200 00	do
Pierre Lavoie.....	do	150 00	do
Ferdinand Tremblay	do	124 00	do
Elzéar Lavoie.....	do	880 00	do
Félix Lévesque.....	do	32 00	do
Widow P. Langis.....	do	367 00	do
Joanem Dubé.....	do	100 00	do
Jean Langis, fils de Louis.....	do	83 60	do
Elzéar Drapeau.....	do	10 00	do
Jean Langis, fils de Germain.....	do	200 00	do
Auguste Langis.....	do	142 80	do
Etienne Patry.....	do	200 00	do
François Castonguay.....	do	.....	do
Angèle Caron	do	1,250 00	do
Joseph Parent.....	do	120 00	do
Elzéar Pineau.....	do	645 00	do
Paschal Parent.....	do	1,110 00	do
Auguste Parent.....	do	428 00	do
Louis Onellette.....	do	.....	do
Louis Lavoie	do	6,860 00	do
Widow Henri Martin.....	do	378 00	do
E. O. Martin	do	65 00	do
The Seminary of Rimouski.....	do	520 00	do
The Bishop of Rimouski.....	do	840 00	do
Eusebe Lepage.....	do	3,396 00	do
Mrs. P. L. Gauvreau.....	do	200 00	do
Joseph Garon.....	do	150 00	do
Joseph St. Laurent.....	do	152 00	do
Lazare St. Laurent.....	do	345 00	do
L. A. Pouliot.....	do	1,066 00	do
P. R. Pineau.....	do	785 00	do
Pierre Côté.....	do	585 00	do
Joseph Gasse.....	do	450 00	do
Land damages, Section No. 8 Interco- lonial Railway.....	8th June, 1876.	.....	do

APPENDIX No. 21—Statement of claims referred to and awarded upon by the Official Arbitrators.—Continued.

Claimant.	Subject of claim.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Joseph St. Laurent.....	Land damages, Section No. 8 Intercolonial Railway.....	18th July, 1876.	\$ cts.			
Joseph Garon.....	do	do	1,000 00			
Daniel Chouinard.....	do	do	110 00			
Sifroi Beaulieu.....	do	do	500 00			
Regule de Banville.....	do	do	1,000 00			
J.-Bte. de Banville.....	do	do	180 00			
Paul Côté.....	do	do	300 00			
Amable St. Laurent.....	do	do	200 00			
Théophile Rioux.....	do	do	200 00			
Jean St. Laurent.....	do	do	842 00			
Municipality of St. Anaclet.....	do	do	160 00			
Germain Lemieux.....	do	do	33 00			
J. E. Grondin.....	do	do	200 00			
Pierre Poirier.....	do	do	190 00			
Ignace Poirier.....	do	do	10 00			
Laurent Poirier.....	do	do	550 00			
Achille Gagné.....	do	do	25 00			
Jean Pierre St. Laurent.....	do	do	54 00			
George Stephen.....	do	do	2,050 00			
Joseph Pouliot.....	do	do	1,000 00			
J. N. Pouliot.....	do	do	2,000 00			
Victor Bouillon.....	do	do	1,500 00			
Wm. Lavoie.....	do	do	1,000 00			
Meichior St. Laurent.....	do	do	2,080 00			
Pierre Roy.....	do	do	25 00			
Olivier Ruest.....	do	do	14 00			
Jean Heppel.....	do	do	160 00			
Sylvain Lavoie.....	do	do	125 00			
Pierre Heppel.....	do	do	500 00			
Laurent Poirier.....	do	do	50 00			
Joseph Heppel.....	do	do	100 00			
Benoni Gagnon.....	do	do	25 00			
Joseph Ross.....	do	do	110 00			
Julien Levesque.....	do	do	110 00			
Napoléon Lavoie.....	do	do	300 00			
Germain Lavoie.....	do	do	400 00			

Antoine Proulx.....	do	40 00	do
Joseph Langlois.....	do	100 00	do
Jean Chasseur.....	do	450 00	do
James Benville.....	do	100 00	do
J. Bte. Caron.....	do	85 00	do
Léon Roy.....	do	200 00	do
L. N. Gagné.....	do	200 00	do
Joseph Lavoie.....	do	400 00	do
Laurent Lavoie.....	do	438 33	do
Frs. X. Gagné.....	do	62 50	do
Prudent Ouellette.....	do	125 00	do
Louis Parent.....	do	250 00	do
Rosaire Pineau.....	do	150 00	do
Théophile Mongrain.....	do	200 00	do
Joseph Tanguy.....	do	300 00	do
Gobert Tramblay.....	do	50 00	do
Mamert Gagnon.....	do	300 00	do
Célestin Oôté.....	do	100 00	do
Michel Charette.....	do	100 00	do
Paul Langevin.....	do	300 00	do
Jean Morrissette.....	do	42 25	do
Fabien Drapeau.....	do	600 00	do
Treffé Mongrain.....	do	1,000 00	do
Sylvert de Champlain.....	do	100 00	do
Pierre de Champlain.....	do	650 00	do
André de Champlain.....	do	300 00	do
Alexis Desrosiers.....	do	300 00	do
Joseph Faucher.....	do	1,200 00	do
Hubert Langlois.....	do	200 00	do
Simon Laroc.....	do	206 00	do
Absolon Desrosiers.....	do	560 00	do
Olivier St. Laurent.....	do	200 00	do
Laurent Proulx.....	do	200 00	do
Hilaire Vaillantcourt.....	do	110 00	do
Eizear St. Laurent.....	do	150 00	do
Ferdinand Vaillantcourt.....	do	369 50	do
Fortunat Carrier.....	do	520 00	do
Denis Lacroix.....	do	1,550 00	do
J. Bte. Dumont.....	do	725 33	do
Célestin de Champlain.....	do	1,608 00	do
Octave Côté.....	do	666 00	do
Siméon de Champlain.....	do		do
Napoléon St. Laurent.....	do		do
George Pelletier.....	do		do
Victor Langlois.....	do		do
Paul Desrosiers.....	do		do
Gobert Girard.....	do		do
Ferdinand Roy.....	do		do

APPENDIX No. 21.—Statement of claims referred to and awarded upon by the Official Arbitrators.—Continued.

Claimant.	Subject of claims.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Louis de Champlain.....	Land damages, Section No. 8 Intercontinental Railway.....	8th June, 1876.	\$ cts.			
François Dubé.....	do	do	778 00			
Jean Aucht.....	do	do	657 00			
Ferdinand Langis.....	do	do				
F. X. Charette.....	do	do	226 00			
J. Bte. Briault.....	do	do				
Marcel Gaudreau.....	do	do	635 00			
François Bouchard.....	do	do				
Ferdinand Roy.....	do	do	328 00			
Xavier Drapeau.....	do	do				
Joseph Charette.....	do	do	297 00			
J.-Bte. Charette.....	do	do	30 00			
Michel Larrivé.....	do	do	460 00			
Charles Larrivé.....	do	do	272 00			
Elzéar Deschênes.....	do	do	320 00			
Edouard Cloutier.....	do	do	325 00			
Edouard Smith.....	do	do	400 00			
Pierre Gagné.....	do	do	450 00			
Paul Ross.....	do	do	178 00			
Alexandre Ross.....	do	do	227 00			
Augustin Ross.....	do	do	806 00			
Louis Desrosiers.....	do	do	700 00			
Germain Thibault.....	do	do	200 00			
Joseph Martel.....	do	do				
Alexandre Lavoie, tuteur.....	do	do	100 00			
Frs. X. Pelletier.....	do	do	150 00			
Frs. X. Parent.....	do	do	300 00			
Alexandre Dutremble.....	do	do	300 00			
Victor Duquay.....	do	do	350 00			
I. N. Blanchet.....	do	do	250 00			
John Smith.....	do	do	300 00			
J. Bte. Saucier.....	do	do	300 00			
Alexandre Marquis.....	do	do	300 00			
Antoine Bérubé.....	do	do	125 00			
Thomas Beaulieu.....	do	do				
Pierre Ross.....	do	do	50 00			

			8th June, 1876	
<i>Laurent Thibault</i>	do	Land damages, Section No. 13 Interco-		300 00
<i>Edouard St. Orge</i>	do	lonial Railway.....	do	155 00
<i>F. X. Bernier</i>	do		do	100 00
<i>Edouard Bernier</i>	do		do	408 00
<i>Elzéar Ouellette</i>	do		do	22 34
<i>Hilaire Roy</i>	do		do	142 00
<i>J. Bie. Paradis</i>	do		do	100 00
<i>Joseph Dubé</i>	do		do	450 00
<i>Rémi Dubé</i>	do		do	250 00
<i>Frs. Levasseur</i>	do		do	1,200 00
<i>George Dubé</i>	do		do	650 00
<i>Olivier Caron</i>	do		do	420 00
<i>Solomon Bélangier</i>	do		do	
<i>Jacob Lepage</i>	do		do	300 00
<i>Pascal Ouellette</i>	do		do	120 00
<i>Lazare Verreault</i>	do		do	200 00
<i>Olivier Bérubé</i>	do		do	400 00
<i>Frs. X. Perrault</i>	do		do	200 00
<i>Widow J. St. Laurent</i>	do		do	1,425 00
<i>Melchior Ouellette</i>	do		do	841 00
<i>Jos. Prudent Hudon</i>	do		do	284 00
<i>André Bérubé</i>	do		do	100 00
<i>Honoré Charette</i>	do		do	247 00
<i>Etienne Fortin fils de Joseph</i>	do		do	200 00
<i>Narcisse Richard</i>	do		do	15 00
<i>Octave Morin</i>	do		do	15 00
<i>F. X. Michaud</i>	do		do	22 50
<i>Alexander Smith</i>	do		do	8 00
<i>Ferdinand Moreau</i>	do		do	515 00
<i>James McEwing</i>	do		do	4 00
<i>Angus Campbell</i>	do		do	30 00
<i>Louis Bérubé</i>	do		do	330 00
<i>Richard Jenkins</i>	do		do	550 00
<i>Louis Dubé</i>	do		do	160 00
<i>Joseph Beaulieu</i>	do		do	400 00
<i>Joseph Bouchard</i>	do		do	600 00
<i>Louis Fortin</i>	do		do	80 00
<i>Théodore Richard</i>	do		do	190 00
<i>Anselme Bastille</i>	do		do	52 00
<i>Etienne Fortin, fils de Louis</i>	do		do	400 00
<i>Marie</i>	do		do	
<i>Jean Bastille</i>	do		do	
<i>Aristobule Roy</i>	do		do	
<i>François Bastille</i>	do		do	
<i>Octave Gendron</i>	do		do	
<i>Bruno Richard</i>	do		do	
<i>Louis Miller</i>	do		do	

APPENDIX No. 21.—Statement of claims referred to and awarded upon by the Official Arbitrators.—Concluded.

Claimant.	Subject of claims.	Date of reference to arbitration.	Amount claimed.	Amount awarded.	Date of award.	Remarks.
Joseph Ouellette.....	Land damages, Section 13 No. Intercolonial Railway.....	8th June, 1876	\$ 400 00			
Wm. Saucier.....	do	do				
Hector Routier.....	do	do	140 00			
F. X. Turgeon.....	do	do	300 00			
Magloire Bérubé.....	do	do	73 50			
Daniel Smith.....	do	do	24 00			
Elzéar Bernier.....	do	do				
Fredif Thibault.....	do	do				
Octave Blanchet.....	do	do	50 00			
Germain Ruest.....	do	do	100 00			
Robt. Carroll.....	do	do	80 00			
M. Roy.....	do	do				
Léon St. Laurent.....	do	do				
Edouard Brousseau.....	do	do				
Jean Brochu.....	do	do				
Thos. Fréchette.....	do	do				
Marcel Brochu.....	do	do				
Lazare Roy.....	do	do				
Joseph Poirier.....	do	do	50 00			
Jérôme Bernier.....	do	do				
Chrysostome Bernier.....	do	do	122 00			
Adolphe Otis.....	do	do	22 00			
Joseph St. Laurent.....	do	do				
D. Robitaille.....	Land damages, Section No. 17 Intercolonial Railway.....	8th June, 1876.	46 20			
D. McLeod.....	do	do	54 60			
A. Poirier.....	do	do	60 00			
Isaie Ritchot.....	do	do	278 96			

F. H. ENNIS,
Secretary, O. A.

DEPARTMENT OF PUBLIC WORKS,
Ottawa, 1st July, 1876.

APPENDIX No. 22.

BRITISH COLUMBIA.

PUBLIC WORKS DEPARTMENT,
VICTORIA, BRITISH COLUMBIA, 13th July, 1876.

SIR,—I have the honor to report on the works under my charge during the fiscal year 1875-76—together with a detail of the operations of blasting the Beaver rock, in Victoria Harbor.

Penitentiary.

This structure is being erected from designs prepared under the direction of the Chief Architect at Ottawa. The basement is built of coursed rubble, chiefly granite, with hammer dressed and drafted quoins, and fine tooled facings. The walls are of cut sandstone ashlar, with brick packing, well clamped throughout. The roof is of the mansard pattern, as described for the Custom House. There will be 50 male, 12 female and 5 punishment cells, with a separate chapel for each sex. The dwelling will contain all necessary offices and rooms for the Warden and his staff. The site is most commanding, on the right bank of the River Frazer, the ground rising gradually at a gradient of 1 in 10. It is a part of the Government Reserve known as the "Camp New Westminster," which contains 77.90 acres. It is well watered. The contract for this work was let to Messrs. Kinsman and Styles, on the 31st October, 1874, at a price of \$139,305. The time for its completion is the 30th September, 1876. The whole of the walls are now completed, with the exception of those over the cells, between the upper arches and roof.

The roof over the dwelling house, is nearly completed; some delay has arisen owing to a dispute with the Contractors as to whether the chimney caps should be built of stone or brick. The pointing of the external walls is now going on, and the trenches are being dug for the sewer pipes. The oak flooring is all being dressed by machinery, having been seasoned by steam, and will be laid so soon as the roof is finished. The cornice and dormer windows are all finished. The building has a massive appearance, and standing on a commanding site, must be regarded as an important Public Work. No provision has yet been made for grading or fencing the ground around the building. The total amount of work performed to 30th June is \$97,481.04. The total expenditure on the work, other than that of the contract, including the salary of the Clerk of the Works, has been \$1,799.32.

Dredging Victoria Harbor.

Dredging operations were carried on in the channel at the entrance to the Harbor, continuously from 1st July, 1875 to 29th February 1876, when the works

were stopped, and the hands paid off. The vessels were laid up and moored, and any machinery exposed to damage, ungearred and stowed carefully away. The whole plant is now in charge of a steady man who has been employed on the works since 1872.

It is to be regretted that this important work should be discontinued, as another year's steady dredging would, I believe, have completely cleared the Bar at the entrance and would have given a depth of 14 ft. at low water springs. Experience has demonstrated that continuous dredging is less costly than that work which is undertaken for a few months only in a year. The reason is sufficiently obvious. The operation of ungearing and fitting up are in themselves costly, and the vessels, even though carefully looked after, always require repair after being laid up. More over a new crew and foreman are necessarily less efficient and skilful than an old and well trained one. The hull of the dredge is getting old, having been built in 1864 and having been disused from 1865 to 1872.

The boiler and machinery, however, are in excellent order. The tug steamer is still in good preservation, with the exception of her bottom, which requires a coat of copper paint. The scows are in a fair working condition.

The following is the result of the working of the 8 months during the years 1875-76.

Month.	Working days.	Cub. yds. removed.
July,	12-80	4,352
August,	20 ...	6,188
September,	22-40	6,511
October,	17-70	4,717
November,	16-30	4,692
December,	17-50	4,828
January,	12 ...	3,026
February,	12-80	2,890
	<hr/>	<hr/>
	131-50	37,264
	<hr/>	<hr/>
Average,	16.43	4,658

Total expenditure for the year including cost of repairs to all the vessels, and also of ungearing machinery and laying up \$15,002.²⁸
 Cost per cubic yard..... 0.40

The result of the dredging since 1872 has been the removal of 108,218 cubic yds. at a total cost of \$63,842.14, of which the sum of \$20,567.36 has been expended in repairs, building new scows, purchase of tug steamer, &c.

Cost per cubic yard including cost of vessels and repairs &c., since 1872 \$0.58
 Cost per cubic yard excluding the above..... 0.39

This is by no means an unfavorable result, in view of the fact that every second day nearly is lost from wind, high sea or other causes, likewise considering the high rates of wages obtaining within the Province, and also the necessity of discharging the excavation dredged, over a mile outside the entrance to the Harbor.

Lately I have been informed by those most capable of judging that the silting up of the Harbor along the whole water frontage of the City, is becoming a very serious matter.

The large ocean steamers which frequent the port, are often strained by grounding at extreme low water springs. The work of dredging this portion of the Harbor would occupy about 3 months, and I think that the Hudson Bay Company, and other property owners interested, will contribute towards it.

Blasting "Beaver Rock."

As there has been, comparatively speaking, but little submarine blasting done, I deem it desirable to report in detail these operations. It is a hard igneous rock, containing about 884 cub. yds. Its apex was about 3 feet below low water springs. The greatest depth to be removed was 10'6". Its length was about 100 ft. and breadth 60 ft. It was a large and formidable obstruction to large and long vessels, in getting to their wharves, many of which have been more or less damaged by it. The first-class steamer "City of Panama" was the last vessel which struck upon it. The contract for its removal was let to Mr. Thomas Spence, under date 12th April, 1875, for the sum of \$11,950. He began the work by drilling 2 and 3 inch holes, from a floating platform and blasting small portions of the rock with dynamite.

He soon abandoned this plan and had recourse to a coffer dam, built of wood 9 ft. square outside and 4 ft. square inside, the intermediate space being puddled with stiff clay. Iron brace rods extended from the top at each corner and were well secured to the rock. This structure stood well throughout last winter. By means of the coffer dam, when pumped out, the contractor sunk a shaft about 3 ft. 6 in. in diameter and 12 ft. deep, and from the bottom of this he ran adits or galleries. The longitudinal gallery 26 ft. in the clear and 5 ft. wide, with another at right angles at the end about 12 ft. 6 in. long and an intermediate gallery about 11 ft. long, each of the latter being about 3 ft. 6 in. wide and 4 ft. 6 in. high. The coffer dam cost.....\$500

Cost of the vertical shaft, per cubic yard.....	60
" " adits or tunnels "	30

The blasting charge consisted of 450 lbs. of dynamite, and 400 lbs. of coarse black powder distributed pretty equally along the adits. It was fired with a "Farmers" battery, and was apparently most successful. The explosion raised a column of water 70 ft. in diameter and 65 ft. high. These were carefully taken with instruments and the results established. The rock now occupies a much larger space each way than it did before the explosion.

The Contractor is now fitting up a large diving bell and getting his machinery ready for hoisting the rock. There has been one payment only made on account of this contract, amounting to \$2,240.63. The time for its completion was 31st August last. The Contractor and his bondsmen have been duly notified of their breach of the terms of the contract and of their consequent liability to pay the amount of penalty mentioned in the contract as liquidated damages. The peculiar nature of the work, and the difficulties encountered in its prosecution and in obtaining men of experience in such matters, induced me to exercise the discretion allowed me on behalf of the Government, and to deal leniently with the Contractor in the matter of time, especially as I am hopeful that he will very shortly complete the work he has undertaken.

Telegraph Maintenance.

During the past year no breaks have occurred in the submerged cables. We have in hand at this moment 4 miles of new cable recently purchased, and 2 miles of old cable which will be available for repairs in case of need. The recent heavy freshets have caused fearful havoc to the reads on the mainland in this Province, as well as to the Telegraph Line, which for the most part, runs along the edge of the main trunk waggon road. The damage to the line extends from New Westminster eastwards for about 5 miles, at Sunnass 15 miles, between Yale and Lytton 57 miles, and from Clinton northwards about 50 miles. These portions of the line are known to be in a bad state. The water was in places 12 ft. over the waggon road, and the drift wood brought down by the Frazer carried away the poles and much of the wire. The damage has been temporarily repaired and the line is now working, but a

thorough overhauling will be necessary to place it in perfect working order. In the neighbouring territory of Washington through which our line runs, a great deal of damage has been done by freshets also. The wire from Swinomish to Sawmish is of black ungalvanized iron, and is now, by the action of the moist atmosphere so corroded and weakened, as to be hardly capable of sustaining its own weight. From Swinomish to Matsqui the same remarks apply. Black wire, even when new, is but an indifferent conductor, and it is therefore desirable that these portions of the line should be fitted with galvanized iron wire; about 12 miles of this material is required.

The scow used for laying the submerged cables is old and unseaworthy. It is necessary that a new one be built, properly kneed and fastened, and with more room for the donkey engine. At present the risk to life and property, (the latter often amounting to \$13,000) is extremely serious, when working in the gulf of Georgia. It is often difficult in those wide stretches, to make the land when a stiff breeze springs up, even in summer, and in winter the peril is much increased. The Revenue and Expenditure on the line for the fiscal year, are given in Schedule A appended.

Should the scheme proposed in the joint Report of the Post Office Inspector and myself recently transmitted to Ottawa be adopted by the Government, a considerable saving will be effected by the amalgamation of the offices of operator and postmaster at the stations mentioned in that Report.

Repairs to Buildings.

The following amounts have been expended under this head of service :

Erection of Custom House.....	\$240 00
Painting roof of Post Office &c.....	65 50
Repairs to this building, after fire on opposite side of Street	36 50

Custom House.

The Custom House Department has been suitably furnished including the long room, Collectors and Chief Clerk's Offices, and the Landing Waiter's room, at a total cost of \$1,496.69.

Public Works advertising account.

Expenditure during the year, \$17.00.

Office Contingencies.

The total expenditure for the year, including share of the Messenger's wages, stationery &c., \$308.48.

Sale of Mint Engine and Boiler.

The engine and boiler, belonging to the machinery in connection with the British Columbia Mint, was sold by public auction at New Westminster on the 14th June, for the sum of \$700, on which 10 per centum has been paid, less charges (\$37.50) amounting to \$32.50, and the balance is due on the 15th of this month.

Registrar's Office Lot.

The eastern half of lot 5 Block XIV, New Westminster, on which the old Registrar's Office stands, was leased in 1871 to Mr. J. K. Suter, by the Provincial Government, at a rental of \$60 per annum. On Confederation the title became vested in

the Government of the Dominion. The Provincial Government, however, appears to have collected the rent for some time after Confederation. Application was made by me to Mr. Suter, for the rent due, amounting to about \$240, which he alleged he was unable to pay, and made a counter proposition to purchase the lot at the price of \$900, which amount was to cover the arrears due for rent. This offer was accepted, but in the meantime, Mr. Suter produced a receipt from the Agent of the Provincial Government for certain amounts paid by him to them. In consequence of this the purchase money was reduced to \$850 payable in 4 instalments, the 1st. a cash payment of \$130, which has been already paid, and the four others, on the 1st July 1877 and 3 following years, amounting to \$180 each, with interest at the rate of 7 per cent. per ann um on each instalment until paid. The full value of the land has been obtained by the Government.

Schedule A.

Miscellaneous Revenue received during the fiscal year 1875-76 :

Rent of Government House, New Westminster, John Kinsman, to 30th June.....	\$193 25
Rent of Camp Buildings, H. Holbrook.....	150 00
Rent of Government Buildings (Assay Office) at New Westminster, from 1st December 1875 to 30th June 1876. J. Nooney, 1875.....	21 00

Sales of Government property during the fiscal year 1875-76.

Sale of Engine and Boiler— 1st Instalment less charges, J. Minhead	\$32 50
Sale of East $\frac{1}{2}$ lot 5 Block ΣIV New Westminster, to J. K. Suter—1st Instalment.....	130 00

Outstanding Advances.

Advances to Superintendent of Telegraph line made 23rd May 1873, by authority contained in letter dated 29th March, 1873.....	1,000 00
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Revenue received on account of Telegraph Line during fiscal year 1875-76.

	\$	Deposit receipt.
July	789.40	" 199
August.....	1050.00	" 203
September	818.90	" 451
October	1015.33	" 461
November	652.99	" 603
December	414.00	" 607
January.....	451.05	" 606
February	436.86	" 678
March.....	510.10	" 890
April.....	722.30	" 890
May	985.61	" 1,028
June.....	520.87	" 1,051
Rent of Donkey Engine from T. Spence.....	200.00	" 997

Total.....\$8,567.41

 Expenditure on account of Telegraph maintenance during fiscal year 1875-76.

Cost of 4 M new submerged cable and charges.....	\$6,679.40
Expenditure July....	2,212.18
“ August.....	2,856.28
“ September.....	2,920.14
“ October.....	2,079.86
“ November.....	3,296.81
“ December.....	3,183.46
“ January.....	1,822.39
“ February.....	3,440.61
“ March.....	2,133.24
“ April.....	1,881.12
“ May.....	2,600.74
“ June.....	2,222.81
Subsidy to Western Union Telegraph Company for 12 months ended 30th June 1876.....	4,000.00
	\$41,320.04

I have the honor to be, Sir,
Your most obedient servant,

B. W. PEARSE,
Resident Engineer.

F. BRAUN, Esq., Secretary,
Department Public Works,

APPENDIX No. 23.

PRINCE EDWARD ISLAND RAILWAY.

RAILWAY DEPARTMENT,
MONTREAL, 20th September, 1876.

SIR.—I now beg to transmit the accounts for the working of the Prince Edward Island Railway for the year ended 30th June, 1876.

The railway was opened for regular traffic on the 12th May 1875, so that the present is the first return for a full year's operations.

The following returns are herewith transmitted :

1. Statement of Capital account.
2. Details of Capital expenditure.
3. Revenue account.
4. Locomotive expenses.
5. Car " "
6. Maintenance of way expenses.
8. General charges.
9. Monthly statement of receipts.
10. " " of expenses.
11. Store account.
12. General balance.
13. Statement of averages &c.

The result of the working from 12th May to 30th June 1875, was as follows :

Earnings.....	\$24,493.99
Expenses.....	47,671.43
Loss.....	23,177.44

The result of the working of the year ending 30th June 1876, was :

Earnings.....	\$118,060.96
Expenses.....	214,930.43
Loss.....	\$96,869.47

The total length of the railway is 198½ miles and the gauge 3 ft. 6 in.

The railway was opened in an incomplete state, and the rolling stock was not adequate for the work which it had to do.

The Engines were small and had not sufficient power to deal with the heavy accumulations of snow, and the number of cars were not sufficient to carry out the traffic in the fall of the year.

The fencing was of a most inferior description, and it was absolutely necessary to replace it with a substantial post and board fence, over a very considerable length of the line.

There was no snow fencing of any kind and a large extent of this has been ordered to be ready by the beginning of next winter.

Four additional engines were ordered, and are now on the line.

The stock of passenger cars has not been increased, but the freight car stock has been increased to a total of 150 box cars and 100 platform cars.

All are now running, and it is believed that sufficient stock is now on the line to enable the traffic to be promptly carried on in the busy season of the year.

A machine shop and machinery for the repair of the rolling stock are now being provided at Charlottetown, and will be in operation before the close of the season.

The works and rolling stock thus enumerated are covered by the appropriation of \$200,000 made during the last session of Parliament. When all are completed the railway will be in a tolerably efficient condition.

Considerable improvements have been made in the Engine stock, and charged for in the working expenses; but the rolling stock will be expensive to maintain.

An outlay of nearly \$6,000 had to be incurred to repair the damage done to the line at St. Peter's Bay, during a heavy gale in November last; and the cost has been included in the working expenses.

A considerable outlay was incurred in the endeavour to keep the line open during winter, which was much increased by the absence of snow fencing, and the inefficiency of the locomotive stock.

The traffic in winter was extremely small.

From July to December 1875 and in May and June 1876, the traffic was never less than \$10,000 a month, and twice exceeded \$14,000, but in the four worst winter months the traffic was as follows:

January.....	\$5,676
February.....	2,699
March.....	5,836
April.....	7,852

The cost of working in those months was very heavy and considerably above the average of the year.

The Island being so much isolated from the rest of the world during winter, has naturally tended to make business exceedingly dull at that time, and this no doubt materially affected the receipts, as well as the uncertainty in regard to its being possible to keep the trains running in severe weather.

Whether this very small traffic in winter will always be the case, time only will determine.

The heaviest tonnage carried was oats, which is always a large crop, on the Island.

The trade of the Island has hitherto been mainly carried on by small craft running into the numerous harbors along the coast. These vessels have carried at very low rates and therefore railway transport has had to be fixed at low rates.

MAINTENANCE OF WAY.

There is a deficiency of ballast upon the Island necessitating long hauls. A heavy outlay has been incurred since the line was opened, in ditching and raising the track. This has now been completed and materially improved the condition of the road bed. Ballast trains have also been at work, but it will take some considerable time and outlay, to put the ballasting into a satisfactory condition.

The masonry, of which, however, there is not a very large extent, is of a poor quality and considerable expense must be incurred in rebuilding the worst parts of it. The wooden bridging will also be expensive until it has been renewed. A considerable saving in the total length of bridging will be effected as the renewals take place.

It will be necessary next to commence the renewal of the sleepers.

The rails weigh 40 lbs to the yard and are of iron. They are too light for the strain caused by the weight of the engines on the heavy grades and very short curves. There is no adequate stock of rails on the line for repairs, ballast pits &c.

On the piece of line between Charlottetown and Royalty Junction, about 6 miles, the traffic is the heaviest and the curves are short and the grades steep.

On this piece of line the rails are shewing unmistakable signs of wear, and if kept in the track next winter, would be in very bad condition in the spring. It has therefore been decided to relay that piece with steel rails, weighing 50 lbs to the yard. This will give a reasonable stock of iron rails for repairing the rest of the line.

The extent of future renewals will be guided by the result of next winter's wear.

LOCOMOTIVES AND CARS.

Including the new equipment already referred to, the stock is now as follows :

- 18 Locomotives.
- 14 1st Class Cars.
- 9 2nd Class Cars.
- 5 Postal and baggage.
- 150 Box freight cars.
- 100 Platform cars.
- 4 Vans.

Ten of the engines were tank engines built in England, 4 built at the Baldwin Locomotive Works in Philadelphia, and 4 last ordered from the Canadian Engine and Machinery Co. of Kingston.

The first 14 engines were supplied by the contractors who built the railway. The cars have been partly constructed on the Island and partly at the Intercolonial Workshops, Moncton.

With the workshops and machinery now in progress, all the repairs to the rolling stock can be economically carried on at Charlottetown.

STORES ACCOUNT.

The stock of stores on the 30th June 1876 amounted to \$31,964.55. As coal and a number of articles in daily use can only be procured during the season of open navigation, a full supply of stores and fuel for use during winter must always be laid in every fall.

Ninety-three thousand nine hundred and sixty-eight (93,968) passengers, and 28,358 tons of freight, were carried upon the railway during the year.

I have the honor to be, Sir,
Your obedient servant,

C. J. BRYDGES,
General Superintendent of Government Railways.

F BRAUN, Esq., Secretary,
Department of Public Works.

PRINCE EDWARD ISLAND RAILWAY.

SUPERINTENDENT'S REPORT.

GENERAL OFFICES,
CHARLOTTETOWN, August 26, 1876.

SIR,

I have the honor to forward herewith, accounts and reports showing the operations of this railway for the year ended 30th June 1876.

The following statements have already been sent to you, viz :

- No. 1.—Statement of capital account.
 2.—Details of capital expenditure.
 3.—Revenue account for year ended 30th June 1876.
 4.—Abstract 1. Locomotive expenses.
 5.— do 2. Car do
 6.— do 3. Maintenance of way and works.
 7.— do 4. Station expenses.
 8.— do 5. General charges.
 9.—Statement of monthly receipts.
 10.— do do expenses.
 11.— do general store account.
 12.—General balance.
 13.—Statement of averages.

Herewith also please find reports by the Engineer and the Mechanical Superintendent.

REVENUE ACCOUNT.

As this is the first complete year during which this railway has been in operation, it is impossible to make comparisons with actual work. We, however, take the estimate made by Mr. Schreiber, (vide Mr. Swinyard's report, page 29) and compare with the result of actual operation.

Earnings.

Receipts for year ended 30th June, 1876.....	\$118,060 96
do per Mr. Schreiber's Estimate.....	150,000 00
Excess of Estimates over actual receipts.....	\$31,939 04

Working Expenses.

Expenditure for year ended 30th June 1876.....	\$214,930 43
do per Mr. Schreiber's Estimate.....	228,000 00
Excess of Estimates over actual expenditure.....	\$13,069 57

Receipts.....	\$118,060 90
Expenditure	214,930 43

Excess of expenses over receipts.....	\$96,869 47
Estimated annual loss.....	78,000 00

Excess of actual over estimated loss..... \$18,869 47

If we deduct from the above the extraordinary expenses not contemplated by Mr. Schreiber, such as altering six tank engines, and making new tenders for the same which cost..... \$6,000 00

Cost of repairing track at St. Peter's after the great storm of the 17th Nov..... \$5,858 42

Extra expense incurred in clearing track from snow in consequence of the want of snow fence &c., say not less than..... \$10,000 00

it will then be seen that the net result of actual operations approaches very closely upon estimates formed.

I transmit herewith a classified statement of freight earnings which will enable you to understand the nature of our freight business.

This railway is however peculiarly circumstanced; as we are compelled to depend upon local business alone, and even that is regularly competed for, by the small sailing craft which are able to sail up the numerous rivers and inlets which indent our coast.

The policy which we have adopted of granting leases of warehouse sites at normal rent, for the purpose of storing grain and produce for shipment, is operating to our advantage in removing the grain marts from the vicinity of the water to the railway.

Not being able to compare with the results of a former year we have taken the last published report of the Intercolonial Railway for that purpose.

Working expenses per mile of road Intercolonial Railway 1875.....	\$2,420 42
Do do Prince Edward Island Railway 1876.....	\$1,096 58
Total expenses per train mile Intercolonial Railway 1875.....	1 10 $\frac{86}{100}$
Do do Prince Edward Island Railway 1876.....	0 93 $\frac{06}{100}$

It may be said that the amount per train mile Intercolonial Railway includes renewals, whilst that of the Prince Edward Island Railway does not. We urge that the heavy expense incurred by the latter, in reconstructing snow ploughs and bridges as well as in surface draining the track, with the extra cost of clearing snow, on account of the absence of snow sheds or fences, will more than balance the outlay on Intercolonial Railway on account of renewals.

STORES.

All supplies are purchased by tender. For the reason already stated, we are unable to compare the working of this department with that of a former year.

We are endeavouring to keep the quantities on hand as small as possible. On account of our isolated position however, we are compelled to maintain a much larger stock of stores than under other circumstances would be necessary.

We contracted for coal with the Intercolonial Company of Pictou for \$2.15 per gross ton f.o.b. at Pictou.

We also contracted for freight thence to Georgetown and Charlottetown at 80 cents and to Summerside at 90 cents, making average cost of coal delivered at our wharves \$2.97 $\frac{1}{2}$. A contract has been made for present year's supply at \$3.00 delivered at our wharves at places named.

CASUALTIES.

January 29, 1876, on Summerside wharf, 2 p. m., while making a coupling, Conductor Taylor was crushed between the end of a projecting stick of timber and the end of a car, so that death ensued in a few hours.

The cause of death was so evident as well as the absence of possible blame, that an inquest was not deemed necessary. Conductor Taylor was esteemed very highly by his fellow employees, as well as by the travelling community and the officers of the Railway. The foregoing is the only casualty resulting in death that has occurred since the road opened.

We are glad to be able again to draw attention to the fact that not a passenger has been either injured or killed upon this Railway.

have the honor to be, Sir,
Your obedient servant,

W. McKECHNIE,
Superintendent.

C. J. BRYDGES, Esq.,
General Superintendent of
Government Railways,
Montreal.

No. 1.—PRINCE EDWARD ISLAND RAILWAY.

CAPITAL ACCOUNT.

DR.

CR.

1875. June 30.....	To cost of Road and Equipment to date.....		3,149,016 50	1875. June 30.....	By Dominion of Canada.....	3,149,016 50
1876. June 30.....	To Expenditure, year ended 30th June 1876, classified as follows :—			1876. June 30.....	By Dominion of Canada.....	47,546 10
	Buildings, Stations and Water Service.....	28,616 75				
	Rolling Stock.....	989 49				
	Telegraph Construction.....	4,912 25				
	Roadway and Works.....	8,748 39				
	Wharves.....	2,940 15				
	Tools.....	139 07				
	Inspection.....	1,200 00				
			47,546 10			
			\$3,196,562 60			\$3,196,562 60

E. and O. F

THOS. WILLIAMS,
Accountant.

CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 2—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of Capital Account, year ended 30th June, 1876.

ACCOUNT.	EXPENDITURE.
	\$ cts.
Charlottetown Buildings.....	8,046 62
Georgetown do	891 91
Summerside do	628 02
Royalty Junction do	622 38
O'Leary do	142 92
Mount Stewart do	88 26
Saint Peters do	163 91
Souris do	235 04
Kensington do	114 70
Wellington do	205 43
Alberton do	693 17
Morrell do	62 57
Tignish do	371 69
Cardigan do	152 78
North Wiltshire do	130 41
River Hunter do	74 57
Port Hill do	119 83
Court House do	38 75
Harmony do	9 25
Union Tank House	84 57
Perth do	57 24
Ashton do	60 43
Morrell do	75 56
Wellington do	63 08
Harmony do	77 14
Alberton do	89 86
Conway do	54 10
O'Leary do	62 89
Milton do	54 49
Blue Shank do	88 90
River Hunter do	78 05
Tracadie do	35 48
Mount Stewart Tank House.....	359 75
Summerside do	9 60
Snow ploughs do	989 49
Telegraph Construction.....	\$4,103 71
do do Outfit of Offices.....	808 54
	4,912 25
Bridges and Culverts	301 67
Grading at Royalty Junction	192 16
do at Bradalbane	3 00
Ballasting	484 50
Outfit of Offices and Stations.....	5,074 38
Filling in space at Charlottetown.....	1,608 18
Charlottetown Wharf.....	997 95
Track Scales.....	2,028 14
Souris Wharf	3 39
Platform at St. Andrews.....	27 10
Hand Cars.....	10 75
Lumber yard fence, Charlottetown.....	41 78
Siding at Wellington.....	6 00
Outfit of Forge, Charlottetown.....	139 07
New Coal Sheds.....	25 25
Summerside Wharf.....	1,938 81
Inspection and Report by F. Shanly, Esq., C. E.....	1,200 00
Fencing.....	5,000 00
Carried forward.....	39,023 22

No. 2.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of Capital Account, year ended 30th June, 1876.—*Continued.*

ACCOUNT.	EXPENDITURE.
	\$ cts.
<i>Brought forward</i>	39,023 22
Machine Shop, Charlottetown.....	3,409 99
Car Shop, do	1,420 54
Blacksmith's Shop, do	203 74
Freight House Extension, Charlottetown.....	1,039 28
Oil House, Charlottetown.....	1,307 20
Breastwork, do	706 13
Tool Houses, do	436 00
Totals	47,546 10

E. & O. E.

THOMAS WILLIAMS,
*Accountant.*CHARLOTTETOWN, P.E.I.,
30th June, 1876.

No. 3.—PRINCE EDWARD ISLAND RAILWAY.
REVENUE ACCOUNT, for year ended 30th June, 1876.

EXPENDITURE.	Year ended 30th June 1876.	Receipts.	Year ended 30th June 1876.
Locomotive Power, per Abstract 1.....	62,413 44	Passenger Traffic	65,005 24
do 2.....	23,027 54	Freight do	45,304 79
Maintenance Way and Works, Abst. 3.....	78,966 33	Mails and Sundries.....	7,750 93
Station Expenses do 4.....	23,188 88	Balance.....	118,069 96
General Charges do 5.....	27,344 24		96,869 47
	\$214,930 43		214,930 43

E. and O. E.

THOS. WILLIAMS,
Accountant.

CHARLOTTE TOWN, P. E. I.,
30th June, 1876.

No. 4.—PRINCE EDWARD ISLAND RAILWAY.

LOCOMOTIVE POWER.—(Abstract 1.)

	Amount.
	\$ cts.
Mechanical Superintendent's salary, Clerk, office and travelling expenses	3,167 61
Wages of Drivers, Firemen and Cleaners	11,139 10
Fuel.....	11,509 15
Oil, tallow, waste and small stores.....	2,763 63
Repairs to engines, tenders and engine tools.....	26,075 63
Water, including pump and tank repairs.....	6,786 32
Miscellaneous.....	992 00
	62,413 44

E. and O. E.

THOMAS WILLIAMS,
*Accountant.*CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 5.—PRINCE EDWARD ISLAND RAILWAY.

CAR EXPENSES.—(Abstract 2.)

	Amount.
	\$ cts.
Repairs to Passenger Cars	4,371 85
do to Postal, Express and Baggage Cars.....	834 26
do to Freight Cars and Vans.....	4,369 60
Wages of Conductors, Train Baggage-men and Brakemen.....	9,509 65
Oil and waste for packing.....	1,065 68
Small stoves and fuel.....	2,570 99
Miscellaneous.....	305 51
	23,027 54

E. and O. E.

THOMAS WILLIAMS,
*Accountant.*CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 6.—PRINCE EDWARD ISLAND RAILWAY.

MAINTENANCE OF WAY AND WORKS—(Abstract 3.)

	Amount.
	\$ cts.
Engineer's Salary, Clerks, office and travelling expenses	4,060 95
Wages in repairing roadway, fences and semaphores.....	40,327 45
Rails, chairs and spikes.....	5,008 18
Sleepers.....	
Timber and lumber for repairs to bridges, cattle guards and fences.....	1,992 57
Repairs to wharves.....	253 44
do to buildings.....	3,343 61
do to snow ploughs, flangers, and tools.....	4,870 86
Clearing ice and snow.....	19,089 27
Miscellaneous	
	78,956 33

E. and O. E.

THOMAS WILLIAMS,
Accountant.

CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 7.—PRINCE EDWARD ISLAND RAILWAY!

STATION EXPENSES—(Abstract 4.)

	Amount.
	\$ cts.
Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage Masters, Yardmasters, Switchmen and Laborers.....	16,235 04
Fuel, oil, light, stationery and other incidental expenses.....	6,782 41
Miscellaneous.....	171 43
	23,188 88

E. and O. E.

THOMAS WILLIAMS,
Accountant.

CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 8.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL CHARGES (Abstract 5.)

	\$	cts.
Superintendent's and Train Despatcher's salaries, Clerks, office and travelling expenses..	7,990	30
Accountant and Auditor's salary, Clerks, office and travelling expenses.....	5,890	02
Paymaster and Cashier's salary, Clerks, office and travelling expenses.....	2,299	02
General Express and Baggage Agent's salary, office and travelling expenses.....	1,542	07
Advertising	640	28
Damages to men, animals and goods.....	1,795	35
Telegraph expenses (not including pay to Operators)	41	62
Miscellaneous.....	1,287	16
Storm damages, Souris Branch, 17th November, 1875.....	5,858	42
	\$27,344	24

E. and O. E.

THOS. WILLIAMS,
*Accountant.*CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 9.—PRINCE EDWARD ISLAND RAILWAY.

MONTHLY STATEMENT OF RECEIPTS

Months.	Passengers.	Freight.	Mails and sundries.	Total.
1875.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
July	11,211 50	2,994 66	782 25	14,988 41
August.....	9,560 31	3,295 10	754 13	13,609 54
September	6,345 34	3,040 90	744 30	10,130 54
October.....	7,233 77	3,950 92	780 82	11,965 51
November.....	6,198 78	7,397 03	717 59	14,313 47
December	3,180 27	6,265 75	608 47	10,054 49
1876.				
January.....	2,490 00	2,703 70	483 09	5,676 79
February.....	1,080 92	1,030 15	588 14	2,699 21
March.....	2,553 58	2,879 08	403 87	5,836 57
April.....	4,605 83	2,664 57	581 77	7,852 16
May.....	5,535 83	4,292 41	570 63	10,398 83
June.....	5,009 11	4,790 52	735 87	10,535 50
Totals.....	65,005 24	45,304 79	7,750 93	118,060 96

E. and O. E.

THOS. WILLIAMS,
*Accountant.*CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 10.—PRINCE EDWARD ISLAND RAILWAY.
MONTHLY STATEMENT OF EXPENSES.

Months.	Locomotive Power.	Car Expenses.	Maintenance Way and Works.	Station Expenses.	General Charges.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1875.						
July.....	4,137 42	2,176 58	5,010 64	1,584 63	1,342 85	14,202 12
August.....	4,333 44	1,678 28	4,831 51	1,917 30	2,085 16	14,845 69
September	3,891 28	1,981 76	4,746 35	1,973 95	1,935 19	14,528 43
October.....	4,723 42	2,041 80	4,358 34	2,107 96	1,289 84	14,521 36
November.....	5,482 92	1,918 27	6,072 03	2,113 60	2,088 81	17,875 63
December	7,680 46	1,904 38	6,980 46	2,258 25	2,709 52	21,543 07
1876.						
January.....	5,734 03	1,494 94	7,706 14	1,640 69	3,211 74	19,787 54
February.....	6,140 99	1,966 83	10,334 70	1,523 84	2,831 88	22,798 24
March.....	6,149 85	1,881 11	9,599 11	1,609 45	2,612 07	21,861 59
April.....	4,751 62	1,843 69	5,682 14	2,472 60	3,428 04	18,178 09
May.....	4,986 89	2,022 14	6,996 12	1,980 41	1,610 30	17,595 96
June.....	4,591 12	2,167 75	6,538 89	2,006 10	2,198 84	17,402 71
	62,413 44	23,027 54	78,956 33	23,188 88	27,344 24	214,930 43

E. and O. E.

THOS. WILLIAMS,
Accountant.

CHARLOTTETOWN, P. E. I.,
30th June, 1876.

No. 11.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of General Store Account, year ended 30th June, 1876.

1875.			
June 30.....	To Balance		10,950 48
1876.			
June 30.....	To purchases during the year....	94,453 45	
	Charges from other departments.....	5,619 06	
	Pay Rolls.....	3,342 33	103,414 84
			114,365 32
	CR.		
1876.			
June 30.....	By Issues during the year.....		82,400 77
	Balance, 30th June, 1876.....		\$31,964 55

E. and O. E.

THOS. WILLIAMS,
Accountant.

CHARLOTTETOWN, P.E.I.,
30th June 1876.

No. 12.—PRINCE EDWARD ISLAND RAILWAY.

DR. GENERAL BALANCE. CR.

General Stores	31,964 55	Dominion Account.....	47,782 24
Cash.....	928 47	Accident Insurance.....	253 61
Stations	442 11		
Mechanical Department.....	3,555 24		
Post Office do	1,346 47		
Schreiber and Burpee	300 00		
Militia Department.	5 39		
Miscellaneous.....	516 50		
Capital suspense account.....	8,977 12		
	\$48,035 85		\$48,035 85

E. and O. E.

THOS. WILLIAMS,
Accountant.

CHARLOTTETOWN, P.E.I.,
30th June, 1876

No. 13.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT OF AVERAGES, year ended 30th June, 1876.

DETAILS.		
Train Mileage.....		230,955
Car do		835,590
Receipts, per train mile..... cents..		51.11
Do mile of railway (19¢).....\$..		602.36
Percentage of passenger earnings to gross receipts.....		55.06
freight do do		38.37
other do do		6.57
Expenses per train mile—		
Drivers', firemen's and cleaners' wages.....		4.82
Fuel.....		4.98
Oil, tallow, waste and small stores.....		1.20
Repairs to engines.....		11.29
Water and tank repairs.....		2.98
Miscellaneous.....		.43
Total		25.65
Mechanical Superintendent's salary, office and travelling expenses.....		1.37
		27.02
Locomotive power.....		27.02
Car expenses		9.97
Maintenance way and works.....		34.19
Station expenses.....		10.04
General charges		11.84
Total, per train mile.....cents..		93.06
Working expenses, per mile of railway	\$..	1,096.58

PRINCE EDWARD ISLAND RAILWAY.

CLASSIFIED statement of Freight Earnings for the year ended 30th June, 1876.

Description of Freight.	Quantities.	Tons.	Amount.
			\$ cts.
Oats.....	Bush. 393,890	7,036	9,230 79
Wheat and other grain.....	" 3,243	66	85 84
Potatoes and roots.....	" 5,938	146	239 38
Flour.....	Bbls. 19,032	1,893	3,394 74
Mackerel.....	" 2,275	341	641 24
Herrings.....	" 4,549	679	1,235 37
Cod and other fish.....	"	171	375 19
Oysters.....	" 1,728	172	328 31
Fish barrels.....	No. 8,996	141	413 51
Timber, hewn and unhewn.....	C. ft. 218,211	6,261	5,517 39
Lumber sawn.....	S. ft. 1,212,401	1,708	1,656 13
Shingles.....	.....	402	450 99
Cordwood and tanbark.....	Cds. 706	1,154	706 24
Coal.....	Cars. 80	368	238 79
Lime.....	Bbls. 1,730	258	195 83
Limestone.....	Cars. 69	552	291 04
Brick and building stone.....	" 41	305	199 80
Salt.....	.....	219	288 56
Live stock, all kinds.....	No. 710	195	571 06
Pork in carcass.....	.....	140	370 27
" in barrels.....	.....	112	279 23
Eggs.....	Pkgs. 3,647	173	587 79
Butter.....	.....	7	29 85
Merchandise.....	.....	5,859	17,254 72
Wharfage, storage, demurrage and excess baggage.....	.....	.....	722 73
Totals.....	.....	28,358	45,304 79

STATEMENT OF PASSENGER TRAFFIC.

Total number carried.....	93,968
Receipts.....	\$65,005 24
Receipts for each passenger.....	69 ⁷³ / ₁₀₀ cts.

W. McKECHNIE,
Superintendent.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

CHARLOTTETOWN, 10th August, 1876.

SIR,

I beg to submit the report of my department for the year ended 30th June, 1876. Appended are statements.

1. Statement of performance and cost of locomotives for the year.
2. Monthly abstract from locomotive returns do
3. do statement of cost of locomotive power do
4. do do of car mileage do
5. Statement showing number of locomotives and cars.
6. do do cost of car service for the year.

The alterations and repairs referred to in last year's report have spread over the year, and will take a month longer, owing to the limited locomotive power and the great difficulty in keeping the road open during the past winter. Since then we have got ahead with our work. Eleven engines have been put in good order and painted. Three have been kept in good running order. Three of the tank engines will need steel fire boxes. Four of the light tank engines are being prepared as snow ploughs.

Thirteen of the thirty five platform cars coming from Moncton, and twenty-five of the twenty eight platform decks have been fitted up and put into service.

The balance of cars and four new engines coming, will be put in running order as soon as they come along.

As soon as the new shops are ready to receive the machinery, it will be transferred, and everything will be done to be in readiness for the winter service.

I have the honor to be, Sir,
Your obedient servant

A. STRONACH,
Mechanical Superintendent.

C. J. BRYDGES, Esq.,
General Superintendent
Government Railways.

PRINCE EDWARD

MECHANICAL

STATEMENT of the performance and cost of

Engine No.	Builders.	In shop the whole of	Hours in steam.	Train Mileage.				Miles run by Engines.			
				Passenger.	Freight and Mixed.	Ballasting.	Piloting.	With train.	Light.	Shunting.	Total.
1	Hunslet Engine Co., Leeds, England.	.....	2,964	3,422	4,906	839	2,398	11,565	308	5,589	17,462
2		Nov. Driving Machinery.....	3,255	2,175	11,435	2,770	1,733	18,113	137	2,479	20,729
3		Sept. & March ...	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	Black Hawthorne & Co., Gateshead on Tyne.	.....	2,548	1,764	8,276	1,548	2,764	14,352	358	2,248	16,958
5		.....	2,958	1,336	4,068	2,539	2,007	9,950	194	5,784	15,928
6	Baldwin Locomotive Works, Philadelphia.	Feb'y, March & April....	1,757	2,850	4,341	640	1,069	8,900	248	1,638	10,783
7		January to June inclusive.....	1,141	98	4,275	338	94	4,805	256	1,541	6,602
8	Baldwin Locomotive Works, Philadelphia.	March....	1,742	552	3,322	1,083	641	5,598	152	3,919	9,669
10		July to Nov., inclusive.	1,782	834	5,059	2,628	1,882	10,407	137	1,361	11,905
		.....	2,037	46	3,695	1,814	1,071	6,626	383	3,105	10,094
11	Baldwin Locomotive Works, Philadelphia.	.....	3,749	498	24,744	.....	1,047	26,289	598	924	27,811
12		.....	3,824	608	17,112	3,646	1,763	23,129	296	376	23,801
13		.....	3,851	3,177	25,146	.....	120	28,443	152	973	29,568
14		January	4,149	3,947	23,356	.....	89	27,392	141	2,112	29,645
		Totals.	35,757	21,311	139,735	17,845	16,678	195,569	3,337	32,049	230,955

ISLAND RAILWAY.

DEPARTMENT.

Locomotives for the year ended 30th June, 1876.

Total Mileage of		Average of cars per mile run with train.	Cost of					Average per 100 miles run by Engines.				
Cars.	Snow ploughs.		Enginemen's Wages.	Fuel.	Oil, tallow, waste, &c.	Repairs.	Total.	Enginemen.	Fuel.	Oil, tallow, &c.	Repairs.	Total.
			\$	\$	\$	\$	\$					
32,886	273	2.84	955 20	801 92	246 83	1,067 68	3,071 63	5.47	4.59	1.41	6.11	17.59
63,515	268	3.50	1,154 42	811 83	246 61	1,196 87	3,409 73	5.56	3.91	1.18	5.77	16.44
48,614	101	3.38	873 00	656 91	219 67	1,616 65	3,366 23	5.14	3.87	1.29	9.53	19.85
26,281	427	2.64	942 33	793 28	221 20	1,041 55	2,998 36	5.91	4.98	1.38	6.53	18.82
24,646	288	2.76	627 99	582 17	184 12	1,874 69	3,268 97	5.82	5.39	1.70	17.38	30.31
19,655	130	4.09	398 69	391 71	97 33	3,105 93	3,993 65	6.03	5.93	1.47	47.04	60.49
22,663	120	4.04	569 00	557 83	201 65	2,693 93	4,023 31	5.89	5.76	2.08	27.86	41.61
45,355	678	4.35	594 98	868 62	201 09	3,275 02	4,939 71	4.99	7.29	1.68	27.50	41.49
31,088	22	4.69	677 05	733 14	204 93	2,898 26	4,513 38	6.70	7.26	2.03	28.71	44.71
135,469	721	5.15	1,418 82	1,793 70	320 85	1,982 25	5,515 62	5.10	6.44	1.15	7.12	19.83
125,706	659	5.43	1,287 56	1,829 26	317 83	1,673 59	5,108 24	5.10	7.68	1.33	7.03	21.46
131,879	1,053	4.63	1,347 55	1,948 39	305 30	1,380 31	4,981 55	4.55	6.58	1.03	4.66	16.84
127,833	552	4.66	1,381 31	1,613 47	321 23	1,708 67	5,024 68	4.66	5.44	1.08	5.76	16.94
835,590	5,292	4.27	12,228 80	13,382 23	3,088 64	25,515 40	54,215 07	5.29	5.79	1.33	11.04	23.47

A. STRONACH,

Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY
MECHANICAL DEPARTMENT.

MONTHLY ABSTRACT from Locomotive Returns for the year ended 30th June, 1876.

Months.	Hours in steam.	Mileage of			Consumption.				Average mileage.		Consumption per 100 miles.			
		Locomotives.	Cars.	Snow ploughs	Coal, in bushels.	Oil, in pints.	Tallow, in pounds.	Waste, in pounds.	Miles run to 1 hour in steam.	No. of cars to one of engine.	Bushels of coal.	Pints of oil.	Lbs. of tallow.	Lbs. of waste.
July.....	3,338	22,110	80,256	.....	4,870	1,040	331	384	6.62	3.62	22.02	4.70	1.49	1.73
August.....	3,387	20,922	91,706	.....	7,720	1,376	455½	387½	6.17	4.38	36.89	6.57	2.17	1.84
September.....	3,154	20,593	72,971	.....	6,949½	1,156	414½	318	6.52	3.54	33.74	5.61	2.01	1.54
October.....	3,222	20,828	79,899	.....	6,412½	1,088	466	365	6.46	3.83	30.78	5.22	2.23	1.75
November.....	3,294	19,701	62,473	1,175	7,901½	1,322	559	361	5.98	3.17	40.10	6.76	2.83	1.83
December.....	2,885	17,053	41,206	1,621	9,836	1,722	626	276	5.91	2.41	57.67	10.09	3.67	1.61
January.....	2,761	19,008	42,991	1,808	8,030	2,052	794	289½	6.88	2.26	42.24	10.79	4.17	1.52
February.....	2,692	11,873	27,058	363	5,996	1,264	519	282½	4.41	2.27	50.50	10.61	4.37	2.37
March.....	2,367	16,989	50,917	335	6,565	1,472	643	439	7.17	2.99	38.64	8.66	3.78	2.58
April.....	2,183	15,812	63,555	.....	5,317	892	473	362	7.24	4.01	33.62	5.64	4.99	2.28
May.....	3,066	22,021	107,915	.....	7,613	1,188	682	434½	7.18	4.90	34.57	5.39	3.09	1.97
June.....	3,408	24,045	114,613	.....	7,140	1,088	604	460	7.05	4.76	29.69	4.52	2.51	1.91
Totals.....	35,757	230,965	835,590	5,292	84,350½	15,670	6,567	4,359	6.45	3.61	36.52	6.78	2.84	1.88

A. STRONACH,
Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY.
MECHANICAL DEPARTMENT.

MONTHLY statement of the cost of Locomotive Power for the year ended 30th June 1876.

Months.	Miles run by Engines.	COST OF						AVERAGES PER MILE RUN.							
		Enginemen's Wages.	Fuel.	Oil, tallow, &c.	Repairs.	Water, including pump and tank repairs.	Miscellaneous, including expenses of office and engine houses.	Total.	Enginemen's Wages.	Fuel.	Oil, tallow, &c.	Repairs.	Water.	Miscellaneous.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
July.....	22,110	1,130 66	560 12	202 21	1,391 03	502 60	350 80	4,137 42	5 11	2 53	91	6 29	2 27	1 58	18 71
August.....	20,922	1,022 17	1,112 98	238 06	1,266 14	372 63	321 46	4,333 44	4 88	5 31	1 13	6 05	1 78	1 53	20 71
September.....	20,593	894 23	874 06	174 22	1,141 03	493 12	314 62	3,891 28	4 34	4 24	84	5 54	2 39	1 52	18 89
October.....	20,828	940 23	902 80	199 65	1,824 86	521 77	334 11	4,723 42	4 51	4 33	95	8 76	2 50	1 60	22 67
November.....	19,701	986 58	1,126 76	233 39	2,140 98	704 75	290 46	5,482 92	5 00	5 71	1 18	10 86	3 57	1 47	27 83
December.....	17,053	1,075 84	1,559 06	292 47	3,138 11	978 09	645 89	7,690 46	6 30	9 14	1 71	18 40	5 74	3 78	45 09
January.....	19,008	999 32	1,143 74	327 40	2,255 82	607 78	399 97	5,734 03	5 25	6 01	1 72	11 86	3 19	2 10	30 16
February.....	11,873	998 32	872 60	234 91	3,128 26	609 48	297 42	6,140 99	8 40	7 34	1 97	26 34	5 13	2 50	51 73
March.....	16,989	838 28	1,092 33	296 12	3,043 25	548 82	331 05	6,149 85	4 93	6 42	1 74	17 91	3 23	1 94	36 17
April.....	15,812	615 24	728 30	167 12	2,364 92	525 56	330 48	4,751 62	3 89	4 60	1 05	15 08	3 32	2 09	30 03
May.....	22,021	795 06	845 71	214 16	2,403 14	439 99	288 93	4,986 89	3 61	3 84	97	10 91	1 99	1 31	22 63
June.....	24,045	813 17	690 69	183 92	1,958 19	460 73	254 42	4,391 12	3 50	2 87	76	6 14	1 91	1 05	18 23
Totals.....	230,955	11,139 10	11,509 15	2,763 63	26,075 63	6,766 32	4,159 61	62,413 44	4 82	4 98	1 19	11 29	2 92	1 80	27 02

A. STRONACH,
Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

MONTHLY STATEMENT of Car Mileage for the year ended 30th June, 1876.

Months.	First class.	Second class.	Postal, baggage and express.	Box, stock and hay.	Platform and coal.	Total.
July.....	24,579	17,094	5,082	21,169	12,332	80,256
August.....	24,427	16,127	6,106	33,425	11,621	91,706
September.....	17,733	14,391	3,741	18,716	18,390	72,971
October.....	20,257	15,259	4,175	23,185	17,023	79,899
November.....	13,382	11,619	3,994	23,723	9,755	62,473
December.....	8,766	7,629	2,977	19,087	2,747	41,206
January.....	9,874	8,869	3,681	13,573	6,994	42,991
February.....	7,067	6,798	2,318	6,851	4,024	27,058
March.....	11,326	5,383	7,093	12,341	14,804	50,947
April.....	11,424	5,803	8,737	14,119	23,472	63,555
May.....	14,905	4,890	13,171	24,392	50,617	107,915
June.....	14,174	9,347	9,988	28,211	52,893	114,613
Totals.....	177,914	123,149	71,063	238,792	224,672	835,590

A. STRONACH,
Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

Statement of the number of locomotives and various classes of cars on hand,
1st July, 1876.

- 14 Locomotives.
- 14 First class passenger cars.
- 9 Second do do
- 5 Postal baggage and express.
- 128 Box and stock.
- 37 Platform.

A. STRONACH,
Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

STATEMENT shewing the Car Expenses for the year ended 30th June 1876.

	\$	cts.
Repairs to Passenger Cars.....	4,371	85
do Postal Express and baggage	834	26
do Freight	4,369	60
Labor, oil and waste for packing.....	1,065	68
Total.....	10,641	39

A. STRONACH,
Mechanical Superintendent.

PRINCE EDWARD ISLAND RAILWAY.

ENGINEER'S DEPARTMENT:

CHARLOTTETOWN, 30th June 1876.

SIR,—I beg to submit the following report on the working of my department, during the fiscal year just ended.

MAINTENANCE.

In the maintenance of road, together with repairs of buildings, platforms, bridges, wharves &c., and removing ice and snow, a total sum of \$78,956.33 has been expended, being \$34.19 cents per train mile (see Statement No. 6). It is to be expected that the item, removing ice and snow, will not be so largely represented in the accounts of future years, as the snow fencing which is now about to be erected will greatly decrease the expense of keeping the line open.

Although last winter was not very severe, either in the level fall of snow, or in the lowness of the thermometer, yet the heavy gales of wind, which accompanied the highest fall of snow, caused the cuttings to be filled, and necessitated much labor in digging out. Great inconvenience was caused in spring by violent thaws suddenly followed by as violent frosts, which formed such quantities of ice on the rail, as could only be removed by the pickaxe.

During the summer and autumn of 1875, much labor was expended in ditching and making proper arrangements for carrying off the water about the track. The benefit of this was felt in the spring as in the then condition of the road-bed, there was a general improvement upon the previous spring. A great deal, however, remains to be done in this particular, before the road-bed can be considered thoroughly satisfactory.

Insufficiency of ballast under the sleepers, combined with the want of drainage above spoken of, caused much trouble and additional labor, in consequence of the heaving of the track, during frost.

This will be to a great extent remedied during the present season, by lifting the track throughout, by ballasting where most required, and by more complete drainage.

Only 595 sleepers have been put in during the year. The renewals in this respect may be expected to be considerably heavier in future years, as many of the spruce and juniper sleepers are beginning to rot on the lower side.

The rails have stood well hitherto, though on parts of the line where there is the heavier traffic (in particular between Charlottetown and Royalty Junction, a distance of 5 miles) indications of wear are apparent, in scaling, burst heads, &c. In renewing these rails it would be highly advisable to adopt a heavier section than the present (40 lbs. to the yard.) With the present light rail, great difficulty is experienced in keeping the alignment true on the sharp curves, and much of the time of the section-men is employed in gauging, spiking and straightening with the press.

The weak rail also throws a heavy strain on fish-plates and spikes; 43,578 lbs. of spikes have been used, and 25,195 lbs. of fish-plates.

The repairs on the wire fence cost \$1,024.53. This fence was found to be quite insufficient for the protection of the line, and is now being replaced by a post and board fence for a distance of 96 miles.

Many of the bridges were insufficiently trussed, and required additional work in this respect in order to make them rigid.

Some also required to have floor timbers laid transversely, as these had been entirely omitted, and it was imprudent that a span of 30 feet should be left unprotected. Much, however, still remains to be done in strengthening the structures before the bridging of the line is in a thoroughly satisfactory state.

In many instances also, the foundations of the stone piers and abutments have not been laid so as to secure a firm bearing, being placed on timbers three or four feet above the natural surface, instead of being bedded in the ground. The stones used are generally of good dimensions and quality, but owing to these defective foundations and a great deficiency of mortar, the work cannot be permanent.

Already indications of instability are apparent in settlement, breaking of stones, &c., and before long it will be necessary to rebuild from proper foundations. There are in all 50 bridges of spans ranging from 10 feet up to 100 feet, and there is a total length of bridging of 2,462 feet.

The length of line maintained is $198\frac{1}{2}$ miles, including the tracks to Cascumpec and Souris wharves, one and a half and half a mile respectively.

EXTRAORDINARY REPAIRS.

On the 17th November, 1875, the Island was visited by a very severe storm, the effect of which was most severely felt, on the Souris branch, where it strikes St. Peter's Bay, for a distance of about 7 miles. At Morell Bridge and Marie Bridge, where the line comes in contact with the water, the embankments were much injured and rendered impassable for about 150 feet, at either end of the bridges. This was repaired by building a timber work protection, in place of the stone rip-rap work originally laid. At the head of the Bay (St. Peter's) a length of 2,400 feet of embankment, protected by light stone work, was carried away together with 1,000 feet of siding in front of the station house. This was rebuilt with a timber work protection 2,400 feet long, filled in with brush and stone, and a brush work protection at the siding—438 tons of timber, 1,705 cubic yards of stone, and 734 loads of brush were used. The line was rendered passable on the 13th December.

A considerable amount of ballasting has still to be done during the present season, in order to complete the work. The cost is not included in the cost of the maintenance of the road.

CONSTRUCTION.

The amount expended on works of construction chargeable against capital reaches a total of \$34,023.22. (See Statement No. 2.)

At Charlottetown, the expenditure includes the construction of Superintendent's office, Engineer's office, Mechanical Superintendent's office, Storekeeper's office, General Store house, fireproof vault and iron house, together with various internal alterations in the original buildings. The accommodation provided in the station building as originally constructed, was totally inadequate to the requirements of the railway.

At Georgetown, the expenditure covers flooring, &c. of coal sheds, rearrangement of waiting rooms, ticket office, &c., alteration of car shed to serve as freight house, and the proper drainage of the station ground. There was no freight house provided here, except at the extreme end of the wharf running out some 700 feet into the sea, and distant over half a mile from the station house.

This arrangement was so unsuitable for the ordinary freight business, that it was necessary to make some provision for it at the terminal station.

The item at Summerside, covers the reconstruction of Agent's office and waiting rooms, the building of blacksmith's shop, the altering of car shed to serve as freight house, and the construction of Freight Agent's office.

Here as at Georgetown, there was no freight house for conducting the ordinary way business, the only freight house being placed at the end of the wharf 1,700 feet from the shore.

APPENDIX No. 24.

RAILWAY DEPARTMENT.

MONTREAL, 18th October, 1876.

SIR,—I have the honor to report upon the working of the Intercolonial Railway in New Brunswick and Nova Scotia, for the 12 months ended 30th June, 1876. The number of miles worked during the year was as follows:

For the whole year.

St. John to Halifax.....	276	miles
Pictou Branch	52	"
Point du Chêne Branch.....	11	"

From the 8th November 1875.

Moncton to Campbellton.....	185	"
Total	<u>524</u>	"

This makes an average mileage worked and maintained during the whole year of 429 miles.

In addition, the Windsor Branch, 32 miles long, is maintained by the Government, but worked by the Windsor and Annapolis Co., who have also running powers over the main lines from the Junction to Halifax, a distance of 13 miles.

The following statements are appended:—

- No. 1.—Statement of capital account.
- No. 2.—Details of capital expenditure.
- No. 3.—Revenue account for years ended 30th June 1875 and 1876.
- No. 4.—Abstract of locomotive expenses.
- No. 5.—“ car expenses.
- No. 6.—“ cost of maintenance of way and works.
- No. 7.—“ station expenses.
- No. 8.—“ general charges.
- No. 9.—Statement of renewals of permanent way and fencing.
- No. 10.—“ of renewals of ferry boat at Pictou.
- No. 11.—“ of monthly receipts.
- No. 12.—“ “ expenses.
- No. 13.—Balance sheet of stores account.
- No. 14.—General balance sheet.
- No. 15.—Comparative statement of averages.
- No. 16.—Statement of casualties.

I also enclose copies of reports made by the Engineers and Mechanical Superintendent.

CAPITAL ACCOUNT.

The total outlay upon this account now amounts to the sum of \$13,548,946.07, of which \$316,641.58 has been expended during the last year, composed as follows—

For the Halifax Extension.....	\$160,058 46
Increased accommodation at St. John.....	50 00
Pictou Landing Wharf.....	21,524 81
Land damages paid.....	9,100 00
Sidings, buildings, stations, rolling stock, &c.....	56,187 66
Completion of the change of gauge.....	69,720 65
Total.....	<u>\$316,641 58</u>

The works of the Halifax Extension were pushed forward as rapidly as possible after the properties belonging to the Imperial authorities were acquired.

It will be nearly the end of the present fiscal year before everything is completed, but the freight station at North Street is now being used, and also a temporary passenger station,

At St. John, the property known as the ballast wharf, has been purchased from the City, and the track round Courtenay Bay is now being finished, so as to connect the ballast wharf with the railway.

The various works on the line, estimated in my last annual report to cost about \$70,000, have been completed for the sum of \$56,187.66, and all additions to the railway will in future be charged in the ordinary working expenses.

This of course would not apply to any large outlay required to meet a new or greatly enlarged traffic.

As the entire line of the Intercolonial Railway was opened throughout on 1st July last, the next annual statement will give the capital cost of the entire system of Government east of Quebec.

Change of gauge.

This work has been entirely completed and the accounts for it closed. It has been finished within the estimate originally made. The old material on hand amounting to the sum of \$79,688.67 will be either sold or used, and it is expected will be very nearly, if not quite, disposed of, by the end of the present fiscal year.

Revenue Account.

The gross earnings for the year amounted to the sum of.....	\$848,861 46
And for the corresponding year ended 30th June, 1875, to....	861,593 43
Shewing a decrease of.....	<u>\$ 12,731 97</u>

Trade in the district traversed by the railway has been exceedingly depressed during the last year, and particularly in the great staples of coal and lumber.

This depression has been universal all over the Continent, and considering the very heavy diminution of traffic upon every railway in Canada, it is encouraging to find that the decrease upon the Intercolonial Railway, has been so small comparatively to that on other lines.

The line from Moncton to Campbellton, was opened so late in the year, that but very little traffic passed over it.

It is now, however, improving, and gives expectation of developing an increasing business.

Ordinary Working Expenses.

The working expenses for the year ended 30th June, 1876, were.....	\$877,485 28
For the previous year they were.....	<u>850,775 27</u>
Increase.....	<u>\$ 26,710 01</u>

The line from Campbellton to Moncton, 185 miles, was opened on the 8th November, 1875, and the cost of working the additional mileage, is included in the cost for the year ended 30th June, 1876.

There has been a considerable decrease on the cost of working the older portions of the line.

A reference to table No. 3, will shew that despite the increased mileage of railway worked, the cost of locomotive power, station expenses, and general charges, has been almost stationary, whilst there has been a decrease in the cost of maintaining and repairing the cars. There has been a considerable increase in the charge for maintenance of way, owing to the extra mileage to keep in order, and to the expenditure for cleaning the new line from snow and ice.

The mileage of engines was for year ended 30th June 1876.....	1,162,856
For the previous year.....	<u>1,031,152</u>
Increase.....	<u>131,704</u>
The mileage of cars for 1876 was.....	7,352,271
“ “ for 1874-75.....	<u>6,708,099</u>
Increase.	<u>644,172</u>

These increases of mileage are due to the opening of the new line.

The receipts per mile of railway and per train mile, have diminished from the same cause, the traffic of the new line in winter having been extremely light.

The cost of working per train mile has been reduced from 79.57 cts. in 1875 to 73.36 cts. for the year ended 30th June, 1876. This is an exceedingly low rate per mile per train, and compares very favourably with any railway on the continent.

The rolling stock has been well maintained during the year, and the full number of vehicles shewn by the stock list, are now in existence, the deficient numbers having been built during the last year, and the cost included in the working expenses. The stock of engines and cars will now be fully maintained, both in numbers and efficiency at the cost of revenue. The present stock of cars will probably not be sufficient to meet the increasing traffic now that the line is opened throughout.

The stock of platform and coal cars will be sufficient for some time to come, but passenger and box freight cars will have to be increased if the present prospects of traffic continue.

The result of the year's working is as follows :

Gross receipts.....	\$848,861 46
Working expenses.....	<u>877,485 28</u>
Deficiency.....	<u>\$28,623 82</u>

This is for the whole mileage worked of 524 miles, including the 185 miles from Moncton to Campbellton.

The whole line between Rivière-du-Loup and Moncton was opened for traffic on

1st July 1876, and the current year's accounts will shew therefore the result of the working of the entire system of Government Railways on the mainland.
General business is now shewing symptoms of improvement.

Renewals.

The substitution of steel for the old iron rails has proceeded steadily throughout the year.

The outlay for the year ended 30th June, 1876 was...	\$185,289.05
For the previous year.....	292,382.00
	Decrease.....
	\$107,092.95
The quantity of rails laid last year was,—steel.....	3,181 tons.
Iron on Windsor Branch.....	1,779 “
	Total.....
	4,960 “
Against, laid in the previous year.....	3,583 “
	Increase.....
	1,377 “

50,971 new sleepers were put under the track and nearly \$18,000 expended on ballasting where the steel rails were laid. The old iron rails are wearing out rapidly and are unable to stand the strain of the speed and the weight of the traffic now being carried. The whole of the old iron rails will consequently be replaced by the 30th June, 1878, when the railway throughout, from Rivière du Loup to Halifax, will be in every respect in first class condition.

Under the authority of Parliament, the following branch lines have received a loan of the best of the old rails that have been taken up, viz :

Chatham Branch, 9 miles.

Elgin Branch, 12 “

These two branches are now running, and are of benefit to the traffic of the Intercolonial Railway. Other branches will be similarly supplied with old rails, when they are ready to receive them.

Considerable repairs have been effected to the masonry and bridging on the old portions of the line, and by continuing this plan, all these works will be in a very satisfactory state.

A new ferry boat has been built, and is now in use at Pictou, and the sum of \$30,000 on this account has been charged amongst the cost of renewals.

STORES.

The stock of general stores on the 30th June 1876 amounted to \$111,245.42.

And there were old rails on hand to be disposed of worth \$44,543.04.

The old material arising from the change of gauge, is being disposed of as rapidly as possible, and will probably all be got rid of in about a year from now.

The item of rails in transit, are for rails shipped from England, and laid in the track since the end of the fiscal year. They will be charged out in the current year's accounts.

The price of iron has been so low, that no effort has been made to dispose of old rails, and consequently the stock on hand will probably continue to increase, until the renewal of old iron rails is completed.

The opening of the line throughout, will somewhat increase the stock of stores, necessary to be kept on hand.

The contracts for the supply of coal have been made for this year as follows :

Albion mines at pit's mouth, \$1.80 per ton.

Spring Hill Colliery at junction with main line, \$1.95 per ton.

The new ferry boat at Pictou has been in successful operation since November last, and has done her work in a very satisfactory manner.

The Northern Division.

The line from Rivière du Loup to Ste. Flavie, a distance of 83½ miles has been worked as local line, throughout the year ended 30th June, 1876.

The receipts have been as follows :

From passengers.....	\$18,165 93
From freight.....	7,219 58
From mails and sundries.....	3,830 55
Total.....	<u>29,216 06</u>

The expenses have been—

For locomotive power.....	\$16,013 82
For car expenses.....	8,092 67
For maintenance of road, including cost of removing snow.....	27,316 02
For station expenses.....	6,319 87
For general charges.....	8,626 63
Total.....	<u>\$66,369 01</u>

Loss on the year's working.....\$37,152 95

In the charge for maintenance of way the sum of \$13,107.98 is included for shovelling snow, ice, &c.

The line between Ste. Flavie and Campbellton was opened for general traffic on 1st July, 1876, which completed the system.

The total mileage worked during the year has been as follows for both divisions :

In New Brunswick and Nova Scotia.....	524 miles.
In Quebec (Northern Division)	83½ "
	<u>607½ "</u>

The gross traffic on the entire mileage has been—

In New Brunswick and Nova Scotia.....	\$848,861 46
In Quebec	29,216 06
Total.....	<u>\$878,077 52</u>

The gross working expenses have been—

In New Brunswick and Nova Scotia.....	\$877,485 28
In Quebec.....	66,369 01
	<u>\$943,855 09</u>

Loss on year's working.....\$65,777 57

In the expenses is included a total sum of \$42,004.68 for clearing ice and snow on both the divisions.

A large extent of snow sheds and fencing is now being constructed at the most exposed parts of the line and this will very materially assist in keeping the line open in winter.

The gross receipts per mile have been \$1,713.32 and the gross expenses \$1,841.67 per mile.

I have the honor to be, Sir,
Your obedient servant,

C. J. BRYDGES,
General Superintendent of Government Railways.

F. BRAUN, Esq., Secretary,
Department of Public Works,
Ottawa.

No. 1.—INTERCOLONIAL RAILWAY.

CR.

CAPITAL ACCOUNT.

DR.

1875.	To cost of Road and Equipment to date	.....	.....	1875.	By Dominion of Canada.....	13,232,304 49
June 30....			13,232,301 49	June 30....		
1876.	To expenditure year ending 30th June 1875, classified as follows:—			1876.	By Dominion of Canada.....	316,611 58
June 30....	Extension of Railway into Halifax.....	160,058 46		June 30....		
	Increased accommodation St. John	50 00				
	Pictou Landing wharf.....	21,524 81	181,633 27			
	Roadway and works.....	24,947 08				
	Wharf and Ferry Service.....	10,018 80				
	Buildings, Stations and Water Service.....	17,714 16				
	Machinery and Tools.....	1,547 17				
	Rolling Stock.....	1,960 45				
	Land damages.....	9,100 00				
	Change of Gauge.....	69,720 65	135,008 30			
			316,611 58			
			13,548,946 07			
						13,548,946 07

E. & O. E.

THOS. FOOT,
Accountant.

MONCTON, N. B., 30th June, 1876.

No. 2.—INTERCOLONIAL RAILWAY.

DETAILED STATEMENT of Capital Expenditure, 30th June, 1876.

Account.	Expenditure.
	\$ cts.
Extension into Halifax.....	160,058 46
Increased accommodation at St. John.....	50 00
Pictou Landing Wharf.....	21,524 81
	181,633 27
Coal sheds, &c., at St. John, Halifax and Moncton.....	7,115 67
Coal Drops, &c., Stewiacke, &c.....	5,838 09
New Siding at Spring Hill.....	2,128 06
Freight shed at Wentworth.....	1,323 78
Passenger Station at Moosepath.....	1,659 08
Improvements, &c., New Glasgow.....	6,298 03
Dwelling for Agent, Point du Chêne.....	1,979 52
Heating apparatus, Moncton Car Shop.....	1,547 17
Additional accommodation, Sackville.....	1,289 69
Night and Day signals at Main stations.....	9,863 41
Water supply for fire service at Moncton.....	2,443 37
Two (2) new snow ploughs.....	1,960 45
Pictou Wharf.....	10,018 80
Water supply, St. John.....	2,720 69
Sidings at Mathesons.....	1 85
Land damages.....	9,100 00
Change of Gauge:—	
To Expenditure Intercolonial Railway.....	\$121,025 96
do Windsor and Annapolis Railway.....	97,257 00
	\$218,282 96
Cr.	
By old locomotives and old iron accrued from change of gauge,	
Intercolonial Railway.....	\$140,562 31
do W. & A. Railway.....	8,000 00
	\$148,562 31
	69,720 65
Total.....	316,641 58

E. & O. E.

THOS. FOOT,
Accountant.

MONCTON, N. B., 30th June, 1876.

No. 3.—INTERCOLONIAL RAILWAY.

REVENUE ACCOUNT for year ended 30th June, 1876.

Previous year.	Expenditure.	Year ending 30th June, 1876.	Previous year.	Receipts.	Year ending 30th June, 1876.
\$ cts.		\$ cts.	\$ cts.		\$ cts.
243,808 18	Locomotive power, per Abstract 1.....	244,646 80	355,724 17	Passenger traffic.....	352,354 35
211,397 07	Car expenses do 2.....	176,903 99	461,922 68	Freight do.....	448,530 70
218,422 09	Maintenance, way and works, do 3.....	277,070 47	40,946 58	Mails and sundries.....	47,976 41
105,742 68	Station expenses, do 4.....	106,562 92	861,593 43	Balance	818,861 46
71,405 25	General charges, do 5.....	72,301 10	281,563 99	Receipts against working expenses.....	28,623 82
850,775 27	Total ordinary expenditure.....	877,485 28		Renewals.....	243,912 87
	<i>Renewals.</i>				\$1,092,774 33
292,382 15	Permanent way, per Abstract 6.....	\$185,289 05			
	Ferry boat, Pictou, do 7.....	30,000 00			
1,143,157 42		215,289 05			
		\$1,092,774 33			

E. & O. E.

Moncton, N.B., 30th June, 1876.

THOS. FOOT,
Accountant.

No. 4.—INTERCOLONIAL RAILWAY.

LOCOMOTIVE POWER.—(Abstract 1.)

	\$	cts.
Mechanical Superintendent's salary, Clerks, office, and travelling expenses.....	3,009	93
Wages of Drivers, Firemen, and Cleaners.....	61,583	64
Fuel.....	61,143	38
Oil, tallow, waste, and small stores.....	11,677	41
Repairs to engines, tenders, and engine tools.....	82,423	98
Water, including pump and tank repairs.....	13,464	28
Miscellaneous.....	9,344	18
	244,646	80

E. and O. E.

THOMAS FOOT,
Accountant.

Moncton, N.B., 30th June, 1876.

No. 5.—INTERCOLONIAL RAILWAY.

CAR EXPENSES.—(Abstract 2.)

	\$	cts.
Repairs to Passenger Cars.....	38,457	09
Do Postal Express and Baggage cars.....	6,907	60
Do Freight cars and vans.....	49,988	39
Wages of Conductors, Train Baggage Masters and Brakemen.....	49,997	47
Oil and waste for packing.....	4,700	90
Small stoves and Fuel.....	18,823	99
Miscellaneous.....	8,028	55
	176,903	99

E. and O. E.

THOMAS FOOT,
Accountant.

Moncton, N.B., 30th June, 1876.

No. 6.—INTERCOLONIAL RAILWAY.
MAINTENANCE OF WAY AND WORKS.—(Abstract 3.)

	\$	cts.
Engineer's salary, Clerks, Office, and Travelling Expenses.....	6,186	79
Wages in repairing Roadway, Fences, and Semaphores.....	162,605	06
Rails, Chairs, and Spikes.....	9,538	51
Sleepers.....	10,440	53
Timber and Lumber, for repairs to Bridges, Cattle Guards, and Fences.....	12,986	15
Repairs to Wharves.....	9,527	71
" Buildings.....	23,688	31
" Snow Ploughs, Flangers, and Tools.....	12,332	90
Clearing ice and snow.....	28,896	70
Miscellaneous.....	867	79
	277,070	47

E. and O. E.

MONCTON, N. B., 30th June, 1876.

THOS. FOOT,
Accountant.

No. 7.—INTERCOLONIAL RAILWAY.
STATION EXPENSES.—(Abstract 4.)

	\$	cts.
Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage Masters, Yardmasters, Switchmen, Watchmen, and Laborers.....	82,597	39
Fuel, Oil, Light, Stationery, Tickets, and other incidental expenses.....	23,965	53
Miscellaneous.....		
	106,562	92

E. and O. E.

MONCTON, N. B., 30th June, 1876.

THOS. FOOT,
Accountant.

No. 8.—INTERCOLONIAL RAILWAY.
GENERAL CHARGES.—(Abstract 5.)

	\$	cts.
General Superintendent and Superintendents' salaries, his Assistants, Train Despatchers, Clerks, &c., and Office and Travelling Expenses.....	21,194	43
Accountant's salary, Clerks, Office and Travelling Expenses.....	5,668	60
Auditor's salary, Clerks, Office, and Travelling Expenses.....	6,184	97
Paymasters and Cashiers' salaries, Clerks, Office, and Travelling Expenses.....	4,613	91
Damages to Men, Animals, and Goods.....	6,193	51
Pictou Ferry.....	7,647	50
Telegraph Expenses (not including pay to Operators).....	2,047	76
Miscellaneous, printing, advertising, &c.....	18,687	62
Rimouski Ferry.....	62	80
	72,301	10

E. and O. E.

MONCTON, N. B., 30th June, 1876.

THOS. FOOT,
Accountant.

No. 9.—INTERCOLONIAL RAILWAY.

RENEWALS OF PERMANENT WAY—(Abstract 6.)

	\$ cts.
Rails and Fastenings.....	164,859 35
Fencing.....	20,429 70
	185,289 05

E. and O. E.

THOS. FOOT,

Accountant.

MONCTON, N. B., 30th June, 1876.

No. 10.—INTERCOLONIAL RAILWAY.

RENEWALS FERRY SERVICE—(Abstract 7.)

	\$ cts.
Renewals, Ferry Boat, Pictou.....	30,000 00

E. and O. E.

THOS. FOOT,

Accountant.

MONCTON, N. B., 30th June, 1876.

No. 11.—INTERCOLONIAL RAILWAY.

MONTHLY STATEMENT OF RECEIPTS.

Months.	Passengers.	Freight.	Mails and Sundries.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1875.				
July.....	41,622 19	40,931 80	2,790 16	85,344 15
August.....	38,073 46	35,704 13	2,570 20	76,347 79
September.....	36,934 87	40,748 07	2,757 82	80,440 76
October.....	33,234 07	46,318 49	2,680 42	82,232 98
November.....	30,906 90	42,761 31	6,618 99	80,287 20
December.....	27,952 61	34,782 45	3,654 59	66,389 65
1876.				
January.....	19,545 13	20,706 61	3,688 69	43,940 43
February.....	16,025 34	31,384 37	3,629 34	51,039 05
March.....	19,943 49	33,289 98	3,185 19	56,418 66
April.....	24,380 33	36,604 48	3,382 55	64,367 36
May.....	30,961 63	41,398 57	3,722 18	76,082 38
June.....	32,774 33	43,900 44	9,296 28	85,971 05
Totals... { 1876.....	252,354 35	448,530 70	47,976 41	848,861 46
{ 1875.....	355,724 17	464,222 68	40,946 58	861,593 43

E. and O. E.

THOS. FOOT,

Accountant.

MONCTON, N.B., 30th June, 1876.

No. 12.—INTERCOLONIAL RAILWAY.
MONTHLY STATEMENT OF EXPENSES.

Months.	Locomotive power.		Car expenses.		Maintenance of way and works.		Station expenses.		General charges.		Total ordinary.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.
1875.												
July.....	17,775	20	13,022	58	17,553	29	8,186	11	867	18	57,404	36
August.....	16,373	98	16,085	00	21,502	44	7,749	15	918	14	62,628	71
September.....	15,674	07	14,177	45	24,988	03	8,152	79	8,507	00	71,499	34
October.....	17,099	87	14,329	00	25,466	52	8,633	18	5,609	24	71,137	81
November.....	19,874	87	12,787	17	18,624	70	10,113	32	4,443	68	65,843	74
December.....	27,114	78	14,942	17	25,836	10	9,685	78	5,446	62	83,025	45
1876.												
January.....	23,320	38	14,924	07	19,042	61	8,465	52	5,836	48	71,589	06
February.....	28,675	04	14,085	46	20,617	79	8,102	58	5,867	69	77,348	56
March.....	23,275	54	16,985	67	22,911	83	8,233	47	7,307	37	78,713	88
April.....	22,237	91	16,513	22	18,434	61	8,431	47	9,596	71	75,213	92
May.....	18,382	64	13,521	26	24,787	91	10,778	19	4,662	69	72,132	69
June.....	14,842	52	15,530	94	37,304	64	10,031	36	13,238	30	90,947	76
Totals.....	244,646	80	176,903	99	277,070	47	106,562	92	72,301	10	877,485	28

E. and O. E.

THOS FOOT,
Accountant.

MONCTON, N. B.,
30th June, 1876.

No. 13.—INTERCOLONIAL RAILWAY.

STATEMENT of General Store Account, year ended 30th June, 1876.

		DR.		S cts.		S cts.	
1875.							
June 30.....	To Balance.....						90,852 15
1876.							
June 30.....	To Purchases during year.....			671,965	81		
	Charges from other Departments.....			157,498	29		
	Pay Rolls.....			8,987	35		
						838,451	45
						929,303	60
		Cr.					
June 30.....	By Issues during year.....			664,424	08		
	Material, &c sold:—						
	Old Rails, Tons 3,946, cwt. 6 qrs. 2, lbs. 3	80,804	09				
	“ Scrap Wheels, lbs. 466,972.....	4,213	39				
	“ Cast Scrap, lbs. 138,454.....	1,550	51				
	“ Scabbards, (No.) 2,396.....	1,414	45				
	“ Cast Iron Chairs, lbs. 1,508,182.....	15,081	82				
	“ Scrap Axles, lbs. 279,839.....	4,197	61				
	“ Spikes, lbs. 63,680.....	955	20				
	“ Steel, lbs. 72,998.....	364	99				
	“ Wrought Iron Chairs, lbs. 2,160.....	48	00				
	New Spikes, lbs. 9,900.....	296	00				
	“ Frogs 1 Elastic.....	135	00				
	“ “ 1 Iron Rail.....	30	00				
				109,091	06		
						773,515	14
	Balance 30th June, 1876.....					155,788	46

E. & O. E.

THOS. FOOT,
Accountant.

MONCTON, N.B., 30th June, 1876.

No. 14.—INTERCOLONIAL RAILWAY.

DR.

GENERAL BALANCE.

CR.

	\$	cts.	\$	cts.	\$	cts.
Cash.....			16,361	69		
General stores:—						
Stores, Fuel, etc.....	111,245	42				
Old Rails for Sale.....	44,543	04				
	155,788	46				
Old material accruing from change of gauge in process of sale.....	79,688	67				
Rails in transit to be laid.....	42,880	45				
Stations.....			278,357	58		
Post Office Department.....			10,061	16		
C. Schreiber.....			8,960	26		
Steel Co. of Canada.....			4,464	96		
Nova Scotia Forge Co.....			12,284	67		
Acadia Coal Co.....			1,037	77		
Albion Mines Coal Company.....			4,522	38		
Drummond Coal Company.....			327	25		
Intercolonial Coal Company.....			1,805	18		
Vale Coal Company.....			230	25		
Spring Hill Coal Company.....			5,481	50		
Bills Receivable.....			2,266	84		
Prince Edward Island Railway.....			2,929	00		
Chatham Branch Railway.....			29,982	15		
Eggn Branch Railway.....			8,000	00		
Windsor and Annapolis Railway — L. V. Smith.....			121	38		
Punchard, Clarke & Co.....	390	24				
Windsor Branch † Earnings.....	7,509	03				
	773	97				
Halifax Extension Suspense Account.....			8,673	24		
Suspense Account.....			806	26		
Individual accounts.....			1,416	80		
			18,338	42		
			416,428	74		
					378,255	67
					35,462	07
					2,598	40
					112	60

E. and O. R.

THOS. FOOT,
Accountant.

MONCTON, N. B., 30th June, 1876.

No. 15.—INTERCOLONIAL RAILWAY.

COMPARATIVE STATEMENT OF AVERAGES, year ended 30th June, 1876.

Details.	1876.	1875.
Mileage of Railway open (including Windsor Branch).....	462	339
Train mileage.....	1,662,856	1,031,152
Car mileage.....	7,352,271	6,708,099
Receipts, per train mile.....cents	72.99	83.55
do mile of Railway	1,837.36	2,541.57
Percentage of passenger earnings to gross receipts	41.51	41.29
do freight do	52.84	53.96
do other do	5.65	4.75
Expenses per train mile—	cts.	cts.
Drivers, firemen and cleaners, wages.....	5.29	5.08
Fuel.....	5.26	7.46
Oil, tallow, waste and small stores	1.00	1.24
Repairs to engines	7.09	7.53
Water and tank repairs.....	1.16	1.07
Miscellaneous.....	.80	.76
Total.....	20.60	23.14
Mechanical Superintendent's salary, office and travelling expenses.....	.43	.50
	21.03	23.64
Locomotive power.....	cts. 21.03	cts. 23.64
Car expenses.....	13.11	17.57
Maintenance, way and works.....	23.83	21.18
Station expenses.....	9.17	10.26
General charges	6.22	6.93
Total (except renewals).....	73.36	79.57
Renewals of permanent way and cars.....	18.02	31.29
Pictou Ferry.....	2.60	
Total per train mile.....	93.98	110.86
Ordinary working expenses per mile of railway.....	1,846.50	2,420.42
Renewals of permanent way and cars per mile of railway	453.88	951.72
Pictou Ferry	64.93	
Total	2,365.31	3,372.14

E. and O. E.

THOMAS FOOT,

Accountant.

MONCTON, N. B., 30th June, 1876.

INTERCOLONIAL RAILWAY.

No. 16— STATEMENT OF CASUALTIES DURING FISCAL YEAR ENDED 30TH JUNE, 1876.

1. At 11 a.m. on August 2, 1875, Wesley McCann, a brakeman was injured at Salisbury by a box car on No. 15 train passing over his right leg maiming him for life. Cause, tripped up by switch rope.

2. At 7.15 p.m. August 31, 1875, John Robb was killed at Shediac by being knocked down and run over, while crossing the track, by No. 4 accommodation train. Verdict as follows: "We the jurors agree that John Robb came to his death by carelessly walking on railway track and being struck by the engine. We exonerate the conductor and driver from any blame."

3. 12.31 p.m. October 6, 1875, Thomas O'Brien and William McKillock, driver and fireman respectively of No. 3 Express train, were both severely injured between Glengarry and Hopewell, owing to engine and cars getting off track by a broken wheel on engine truck.

4. 11.15 a.m. November 8, 1875, William Ryan, brakeman on No. 22 freight train, was killed at Sackville bridge. His head came in contact with bridge, knocking him down between the cars, when train passed over his body.

Coroner's verdict as follows:

"The said William Ryan came to his death by accidentally falling between two box cars and part of the train passing over him, and we find no blame attached to any of the officers of the said train No. 22."

5. 9.40 p.m. on November 6, 1875, John Ahern, conductor, and John Keys brakeman of special coal train, were injured three miles west of West River. Descending grade, engine and car of stone broke away, back part of train afterwards running into the car of stone. Both Ahern and Keys thrown off the cars. Ahern's side considerably injured; Keys only slightly injured.

6. 12.04 p.m. November 19, 1875, Phillip Leshore had right leg crushed necessitating amputation. While crossing track in sleigh at Shediac he was run into by engine of No. 18 Local Express.

7. 3.40 p.m. January 15, 1876, Coleman Wilmot, brakeman on No. 6 freight train, had finger crushed off at Hampston, while unloading freight.

8. 9 p.m. on January 26th, 1876, Richard D. Walker, brakeman of No. 24 express train was killed one mile south of River Jacquet by falling off baggage car. Verdict of coroner's jury: "That the said Richard D. Walker came to his death by accidentally falling from the train on the I. C. R. on the 26th day of January, 1876, at about one mile south of River Jacquet station."

9. 2.45 p.m. on January 24, 1876, Melville Etter, brakeman on special train at Elmsdale, had top of finger cut off by having his hand caught between the draw bars while uncoupling.

10. February 3, 1876, Myles Fairweather, shunter, St. John Yard, fell down and had left foot caught by driving wheel of engine. Three toes had to be amputated.

11. 12 noon on May 29, 1876, Thomas Smith, brakeman of special train, had his arm crushed at Ballastpit, Truro, owing to arm being caught between buffers.

 INTERCOLONIAL RAILWAY.

ENGINEER'S OFFICE,
 MONCTON, N.-B., July 1, 1876.

SIR,—I have the honor to submit the following report in connection with the Engineering Department of the Intercolonial Railway for the fiscal year ended 30th June, 1876.

50,971 new sleepers were put in the track between Halifax and St. John and on the Pictou and Shediac Branches, and 17,304 sleepers were renewed on the Windsor Branch.

35½ tons of old iron rails were removed and were replaced with steel rails, the total weight provided being 3,181 tons. 20 miles or 1778 tons, 15 cwt., 0 qrs., 22 lbs of iron rail were also renewed on the Windsor Branch.

The whole of the rails above referred to are secured at their joints by fish-plates and bolts.

The sum of \$17,776.06 was expended in ballasting various portions of the line between Halifax, Truro and Pictou Landing, where steel rail was laid, and on the Windsor Branch a further outlay of \$4,945 was incurred for the same service.

A large quantity of fence was destroyed by fire during the dry season of the year, there being no less than twenty-five miles burned on the Eastern Division alone.

From the above cause as well as from natural decay, a total length of 17,787 rods of post and board and snake fence was renewed and \$8,533.13 was expended in ordinary repairs: on the Windsor Branch, 7,921 rods of new fence were built and \$948.67 were expended in repairing old fence.

The snow sheds and fences erected in former years having proved highly successful an additional quantity was provided at exposed cuttings. Five new sheds, embracing a length of 4,680 lineal feet were built between Londonderry and Wentworth Stations, and 1,395 rods of snow fence were erected where most required on the Pictou Branch and on the main line between Maccan and St. John.

Cattle pens were erected at Point du Chêne, Oxford, Thomson, and Greenville Stations.

The Trestle Bridge over Robinson's Meadow near Brookville Station, was strengthened and a quantity of timber was purchased for the renewal of the whole of the bents. This work is now in hand and will be completed in a few weeks. The bridge consists of 20 spans of 30 feet each and is the longest wooden structure on the line.

McKinlay's Bridge between Rothesay and Quispamsis, consisting of 5 spans of 25 feet each, had new bents provided, and many other wooden bridges of small span were supplied with new stringers.

No repairs were required to any of the iron bridges except the renewal of track stringers on the one over the Petitecodiac River and the two bents of the bridge over the Scadouc River on the Shediac Branch.

Jonathan Creek bridge, 132 feet long, and situated a short distance west of Moncton, was replaced by an abordeau and sluice, the latter having three openings of 3 x 4 feet each.

Heavy repairs were made to twenty-nine stone culverts and cattle guards, and ten cattle guards of timber were built at unprotected road crossings.

Three overhead bridges at public crossings between Halifax and Truro having become unsafe for loaded teams, they were replaced by level crossings, the alteration

being much less expensive than the renewal of the bridges. The height of these bridges above the rail was insufficient to clear a man's head when standing on the top of a box car and several accidents to brakemen had occurred from this cause.

Extensive repairs were made to the engine house and car shed, as well as to the station buildings at St. John.

A small shed and platform for passenger accommodation were built at Matthew's Ferry between Hampton and Nauwigewauk stations and also at Quispam, two miles west of Hampton.

In consequence of the increase of business at Bloomfield station, the old shed and platform were replaced by a combined passenger and freight house, and a platform was also provided.

At Campbell station, two miles west of Norton, the passenger shed and platform were rebuilt. The freight platform at Dunsinane siding, four miles east of Penobscis, was renewed and a new tank house and tank were erected at a point two miles east of Penobscis where there is an abundant supply of water, at all seasons of the year. The tank is fed by gravitation, the water being conducted through four inch iron pipes laid down in 1873. At Petitcodiac a new passenger station and platform were erected to replace the old building destroyed by fire in February, 1875.

The roof of one of the warehouses at Point du Chêne received a coat of asphalt, the size of the building being 300 feet by 24 feet, and the building occupied as offices at this station was repaired and painted.

Slight repairs were made to the buildings at Memramcook, Dorchester, Sackville-Aulac, Amherst, Maccan, Athol, Greenville, Londonderry and a few other stations.

Platforms were built to replace those worn out at the following stations:

	Length of platform
Rocky Lake, passenger and freight platform.....	50 feet.
Enfield " "	172 "
Shubenacadie freight platform.....	218 "
Stowiacke passenger and freight platform.....	224 "
Riversdale " "	242 "
West River " "	170 "
Glengarry " "	248 "
Hopewell " "	250 "

A new platform 150 feet long and 12 feet wide was built at Nappan station for the convenience of parties shipping hay, the accommodation being much required.

It has been necessary to remove a large quantity of loose rock from the slopes of a number of cuttings on the Pictou Branch between Truro and Riversdale, as the safety of trains was endangered from heavy masses being liable to fall at any moment.

In removing this rock an engine and train of cars was employed for several days.

The timely presence of a watchman placed in one of the worst cuttings prevented what might have been a serious accident, a mass of rock weighing several tons having fallen on the track shortly before the arrival of a passenger train.

A train and gang of men were employed for sometime cleaning many of the longest earth cuttings between Amherst and Wentworth to prevent injury to the road-bed from material washing down the slopes and filling in the ditches.

Due attention has been paid to the proper drainage of cuttings throughout the line, for upon this work depends, to a large extent, the efficient maintenance of the track.

At Pictou Landing much damage was done to the embankment on the western side of the track from a succession of heavy gales, and to prevent further injury from the waters of Pictou harbor a breastwork of timber was built and was filled with stone.

The following new works were carried out during the year under special appropriations.

At Spring Hill a siding 1,308 feet long was laid, and two sidings were extended making a total length of 1,850 feet of new track at this station.

Timber trestle work enclosed at the sides and on the top, was erected at the following stations for the storage of the coal required by parties living adjacent to the Railway.

Station.	Length of trestle work.	Length of track.
Rothesay.....	220 feet	352 feet.
Hampton.....	210 do	297 do
Salisbury.....	170 do	252 do
Shediac.....	291 do	573 do
Memramcook.....	100 do	346 do
Oxford.....	140 do	446 do
Londonderry.....	188 do	440 do

At St. John an old building was moved to a convenient site and was converted into a coal shed. This building is 120 feet long and 24 feet wide and is approached by a timber trestle work 500 feet long.

The trestle work enters the building and runs its whole length and is elevated about 10 feet above the floor to admit of a large supply of coal being deposited thereon for the use of engines.

At Moncton a new shed 136 feet long and 24 feet wide was erected for the storage of coal and is reached by a trestle work 700 feet long placed outside of the building and elevated sufficiently high to shoot the coal into the shed direct from cars, and at Halifax an extension of 41 feet was made to the old coal shed.

The contract for the construction of the wharf at Pictou Landing having been forfeited in consequence of the slow rate of progress, the securities were called upon to complete the work. The length of the wharf is 615 feet, its width at the shore end is 35 feet, and at the outer end 75 feet, where there is a depth of 22 feet at low water mark.

At Pictou an extension of 180 feet was made to the railway wharf. The width of the extension is 55 feet and on it is erected a freight shed 75 feet long and 25 feet wide.

At the outer end of this wharf there are 13 feet of water at low tide.

Semaphore signals were erected at Bedford, Shubenacadie, Brookfield, New Glasgow, Sackville, Dorchester, Moncton, Petitcodiac and Rothesay.

The following stations are provided with signal switches:

St. John,	Foundry Siding,
Rothesay.	New Glasgow,
Quispamsis,	Albion Mines Branch,
Nauwigewauk,	Stellarton,
Hampton,	Drummond Mines Branch,
Passekeag,	Hopewell,
Bloomfield,	Glengarry,
Norton,	Battery Hill Siding
Apohaqui,	New Lang Siding,
Sussex,	Gordon Summit Siding,
Penobsquis,	West River,
Anagance,	Landsbury Siding,
Petitcodiac,	Campbell Siding,
River Pollet,	Riversdale,
Salisbury,	Union,
Boundary Creek,	Valley,
Moncton,	Truro,
Painsec,	Johnson's Crossing.

Shediac,
 Pointe du Chêne,
 Memramcook,
 Dorchester,
 Palmer's Siding,
 Sackville,
 Cole's Island Siding,
 Aulac,
 * Amherst,
 Nappan,
 Little Forks Siding,
 Spring Hill,
 Salt Springs,
 Oxford,
 Atkinson's Siding,
 Greenville,
 Greenville Crossing,
 Giles Siding,
 Caldwell's Brook Siding,
 Wentworth,
 Atkin's Siding,
 * Londonderry,
 McCullock's Siding,
 Pictou,
 Glenfallock Siding,

Brookfield,
 Graham's Siding,
 Polly Bog,
 Stewiacke,
 Murray's Siding,
 Laing's Siding,
 Maitland Siding,
 Shubenacadie,
 Milford,
 Elmsdale,
 Malcolm's Siding,
 Enfield,
 Oakfield,
 Grand Lake,
 Wellington,
 River Rawdon Siding,
 Windsor Junction,
 Waverley Siding,
 Rocky Lake,
 Bedford,
 Nine Mile River Siding,
 Four Mile House,
 Logan's Siding,
 Richmond.

At Moosepath a combined passenger and freight house was erected of wood.

At Pointe du Chêne a dwelling house of wood, 35 feet by 25 feet, was built for the station agent.

At Sackville a freight shed in size 83 feet by 29 feet, and cattle pen were provided together with a new siding 292 feet long, and at Wentworth a freight shed 88 feet by 25 feet was built of wood.

At New Glasgow a new freight shed 150 feet long and 30 feet wide was built and extensive repairs were made to the existing station buildings.

Two new platforms were erected on opposite sides of the track, one being 534 feet long and the other 325 feet.

There were also two sidings laid at this station of the respective lengths of 500 and 1500 feet.

The works connected with the extension of the railway from Richmond to North Street at Halifax, have been pushed forward with all possible speed.

A brick freight shed 500 feet long, one half of which is 40 feet wide and the other half 30 feet, has been erected and is ready for occupation. In this building 4 depot scales have been placed each having a weighing capacity of 6 tons.

The excavation and masonry for the roadway are well advanced and will soon be completed. Already the track has been laid from Richmond to the crossing of Water St., a distance of 3800 feet, but no further extension can be made until the heavy rock cutting at this point is completed. This work will occupy several weeks, and as soon as it is finished the track will be laid to North Street and all necessary sidings will then be provided at the terminus.

Arrangements are made to erect a double track trestle work to receive coal for city consumption, which will effect a direct saving in every ton of coal hauled away.

Good progress has been made with the buildings in course of erection for passenger accommodation. The walls of the main building have been brought up nearly to their proper height and work on the passenger shed is being prosecuted with vigor. Both these buildings are of brick.

* Partially supplied on opening of line in 1872.

The size of the former building is 50 feet by 112 feet with two stories and a mansard roof, and in it will be the offices and waiting rooms with living apartments for the station agent, the latter building is 400 feet long and 80 feet wide, the whole being covered with corrugated iron roofing supported on iron trusses placed 16 feet apart.

The branch line at Stewiacke, one mile in length, is well advanced and will be ready for traffic in a few weeks. It connects with the main line a short distance south of the above station and runs to River Stewiacke where a wharf is under construction.

On the 8th of November 1875 the line between Moncton and Campbellton was opened for traffic, the distance being 185 miles. This length was divided into two districts, each being placed under the direct charge of a trackmaster.

These districts were subdivided into sections averaging 6 miles in length (the same as on the lines already in operation), each section having a foreman and two men to attend to the proper maintenance of the track.

At the time the line was opened the winter had fairly commenced, and although severe snow storms frequently prevailed, regular communication was maintained between Moncton and Bathurst with comparatively few interruptions.

Between Bathurst and Campbellton, a distance of 63 miles, the detentions were more frequent owing to the road being exposed to the full force of drifting winds from the Bay Chaleur, but the erection of the snow sheds and fences now in hand and those hereafter to be built will, no doubt, prove as effectual in securing regular communication as they have between Halifax and St. John.

I have the honor to be, Sir,
Your obedient servant,

ALEX. MACNAB,
Engineer.

C. J. Brydges, Esq.,
General Superintendent Government Railways,
Montreal.

INTERCOLONIAL RAILWAY.

MECHANICAL SUPERINTENDENT'S OFFICE,
MONCTON, N. B., September 1st, 1876.

SIR,—I beg to submit a report of the operations of the Mechanical Department for the year ended 30th June, 1876.

Appended hereto will be found the following statements:—

- A. Statement shewing the number of Locomotives and various classes of cars on the 1st July 1875 and 30th June 1876.
- B. Statement of Cars.
- C. Abstract of locomotive returns.
- D. Comparative statement of the cost of Locomotive power for each month from 1st July 1875 to 30th June 1876.
- E. Statement of car mileage.
- F. General statement of the expenses of this department.

Four first class, two second class, four postal and baggage, twenty-five hay, six refrigerator cars and five snow ploughs, were built on account of construction.

Three first class, eighteen stock and box, twenty-six platform, fifty-six coal cars and two snow ploughs were rebuilt during the year.

Two hundred and seventeen coal cars and two hundred and twelve freight cars were narrowed; three convertible engines were narrowed at an average cost of \$527.59, and 14 others not constructed with a view to being narrowed, were converted at an average cost of \$2,886.55. Four were narrowed by Messrs Fleming and Son.

All the work in connection with change of gauge was completed at the end of the year.

In addition to this, four engines were converted for the Canadian Pacific Railway. Two others which were sold to Elgin and Chatham Branches were also converted from broad to narrow gauge.

Thirty-five platform, twenty-two box cars and twenty-eight sets of trucks were built for the P. E. I. Railway.

I may say that engines and cars generally are in good condition.

I am, Sir,

Your obedient servant,

H. A. WHITNEY,
Mechanical Superintendent.

C. J. BRYDGES, Esq.,
General Superintendent of Govt. Railways,
Montreal

A.—STATEMENT shewing the number of Locomotives and of the various classes of Cars—July 1st 1875 to 30th June 1876.

	Locomotives.	The various classes of cars.									
		A.—1st class Passenger.	B.—2nd class Passenger.	G.—Postal and smoking.	E.—Baggage and Express.	V.—Conductor's Vans.	C.—Box freight.	Cc.—Stock.	Ca.—Hay.	D.—Platform.	F.—Hopper et coal.
On hand, July 1, 1875.....	89	40	29	9	13	5	248	43	9	578	769
Built at Moncton during year.....		4	2	4			6		25		56
Received from Intercolonial Railway Commissioners (Northern division).....	20	3	4	3		2	147	1		450	75
	100	47	35	16	13	7	401	44	34	1028	900
Less sold to Chatham Branch.....		1	1								
Condemned						3					
Total on hand, June 30, 1876.....	100	46	34	16	13	4	401	44	34	1028	900

B.—STATEMENT OF CARS—June, 1876.

Description.	Total on Record.	Condemned, not commenced rebuilding.	Being rebuilt.	Under repairs.	Service-able.
First class.....	46		1		45
Second class.....	34		1	1	32
Postal and smoking.....	16			2	14
Baggage and Express.....	13			1	12
Conductor's Vans.....	4				4
Box freight.....	401			10	391
Stock.....	44			1	43
Hay.....	34	1			33
Platform.....	1,028			44	984
Hopper.....	900	1		38	861
Total.....	2,518	2	2	97	2,417

(C.)—ABSTRACT OF LOCOMOTIVE RETURNS.

Months.	Mileages.				Consumption.				Averages.				Consumption per 100 miles.			
	Hours in steam.	Locomotives.	Cars.	Snow ploughs.	Tons of coal.	Oil, pints.	Tallow, pounds.	Waste, pounds.	Miles to 1 hour steam.	Cars to 1 mile run.	Snow ploughs to 1 mile run.	Coal in pounds.	Oil in pints.	Tallow, pounds.	Waste in pounds.	
July	10,849	92,236	580,023	.....	1,672	5,080	4,302	1,859	8.50	6.28	.....	3,891	5.50	4.66	2.01
August.....	9,998	88,990	606,695	.....	1,606	4,489	4,132	1,927	8.90	6.81	.....	4,042	5.04	4.42	2.16
September.....	10,036	88,744	595,735	.....	1,675	4,317	3,741	1,814	8.84	6.71	.....	4,228	4.86	4.21	2.04
October.....	10,587	92,700	617,734	.....	1,805	4,059	3,611	1,713	8.75	6.66	.....	4,361	4.37	3.86	1.81
November.....	11,287	101,180	626,859	1,005	2,226	3,861	3,838	1,793	8.96	6.19	0.01	4,928	3.81	3.81	1.77	
December.....	12,047	108,942	644,159	2,521	2,618	4,581	3,926	1,644	9.04	5.91	0.02	5,383	4.20	3.60	1.50	
January.....	10,155	87,774	456,923	2,790	1,995	3,536	3,270	1,428	8.64	5.20	0.02	5,091	3.80	3.3	1.62	
February.....	11,927	90,142	521,611	3,895	2,192	3,405	3,136	1,249	7.72	5.78	0.03	5,447	3.77	3.47	1.38	
March.....	12,518	92,904	592,880	2,174	2,110	3,288	3,120	1,312	7.42	6.38	0.01	5,087	3.53	3.35	1.41	
April.....	11,452	100,763	636,117	507	2,167	3,297	3,259	1,397	8.79	6.31	.....	4,817	3.28	3.23	1.38
May.....	11,851	107,050	743,508	.....	2,885	5,027	4,566	2,062	9.03	6.90	.....	6,036	4.69	4.26	1.92
June.....	12,176	111,431	730,017	.....	3,189	6,337	5,328	2,269	9.15	6.64	.....	6,410	5.68	4.78	2.03
134,883	1,162,856	7,352,271	12,892	26,070	51,277	46,249	20,467	8.62	6.32	0.01	5,022	4.40	3.97	1.76		

(D)—COMPARATIVE STATEMENT of cost of Locomotive power for each month from 1st July, 1875, to 30th June, 1876.

Months.	Miles run by engines.	Cost per 100 miles run by Engines.																											
		Drivers, firemen and cleaners' wages.	Fuel.	Oil, tallow, waste and small stores.	Repairs to Engines, tenders and tools.	Water, including Tank repairs.	Miscellaneous, including Office and Engine Houses.	Total.	Drivers' wages.	Fuel.	Oil, tallow waste and small stores.	Repairs.	Water.	Miscellaneous.	Total.														
		\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.												
July.....	92,236	4,205	53	3,889	93	1,370	32	6,997	08	593	68	718	66	17,775	20	4	55	4	21	1	48	7	59	66	78	19	27		
August.....	88,990	4,283	19	3,566	00	1,245	46	6,150	53	465	91	662	29	16,373	98	4	82	4	01	1	39	6	91	52	74	18	39		
September.....	88,740	4,440	98	4,019	73	1,201	88	4,661	05	755	77	594	66	15,674	07	5	00	4	52	1	36	5	26	89	68	17	71		
October.....	92,700	4,153	70	4,267	96	1,044	26	5,415	61	1,417	75	798	59	17,099	87	4	48	4	60	1	12	5	85	1	53	86	18	44	
November.....	101,180	5,154	13	5,659	87	969	04	5,217	69	1,106	48	1,758	55	19,865	76	5	09	5	50	95	5	15	5	15	1	69	74	19	61
December.....	108,940	5,150	67	7,694	00	1,047	71	8,433	61	2,801	94	1,986	85	27,114	78	4	72	7	07	97	9	7	74	2	57	1	82	24	89
January.....	87,794	4,869	49	5,497	99	891	26	8,240	35	1,284	01	2,537	28	23,320	38	5	54	6	27	1	02	9	38	1	46	2	89	26	56
February.....	90,142	6,050	17	6,100	01	778	62	13,501	15	1,006	60	1,238	49	28,675	04	6	72	6	76	87	14	97	1	12	1	37	31	81	
March.....	92,904	5,601	84	5,180	04	651	25	9,414	54	1,338	31	1,089	56	25,275	54	6	02	5	57	71	10	14	1	44	1	17	25	05	
April.....	100,763	6,116	33	5,720	58	775	76	7,283	85	922	61	1,418	78	29,337	91	6	07	5	68	77	7	23	92	1	40	1	40	22	07
May.....	107,050	5,649	58	4,887	75	825	66	5,041	13	1,265	57	712	95	18,382	64	5	28	4	57	78	4	70	1	18	66	17	17		
June.....	111,431	5,906	63	4,658	92	876	19	2,067	39	505	65	828	34	14,842	52	5	30	4	18	78	1	86	45	74	74	13	31		
Totals.....	1,162,866	61,583	64	61,143	38	11,677	41	82,423	98	13,464	28	14,345	00	244,637	69	5	29	5	26	1	00	7	69	1	16	1	23	21	03

(E.)—STATEMENT OF CAR MILEAGE

MONTHS.	First class.	Second class.	Express, Bags, bags, Postal.	Box, Hay, Cattle.	Platform and eight- wheel coal.	4-wheel coal— 2 rated as one.	Total.
July	83,430	81,266	48,250	164,036	116,947	86,091	580,023
August	80,786	74,064	49,183	160,296	151,230	91,136	606,695
September	83,398	68,853	45,613	177,282	148,179	72,410	595,735
October	80,092	70,867	41,148	196,409	151,896	77,322	617,734
November	78,308	76,451	38,677	188,263	161,210	83,260	636,859
December	83,645	80,643	40,483	187,709	187,315	64,374	644,169
1876 January	68,693	64,168	35,650	152,253	93,091	43,068	456,923
February	49,924	63,063	35,282	165,280	93,166	114,496	521,611
March	54,915	64,117	37,820	192,613	148,237	95,148	592,880
April	75,931	79,587	41,472	211,793	110,893	116,441	636,117
May	85,357	85,618	46,010	249,601	205,400	71,522	743,508
June	87,179	84,985	48,413	236,666	196,616	76,158	730,017
Total mileage to 30 June 1875	911,748	893,682	508,001	2,283,231	1,764,180	991,429	7,352,271
	4,870,098	4,762,785	3,301,826	13,025,199	12,370,222	2,933,587	41,284,617
	5,781,846	5,666,467	3,809,827	15,308,430	14,134,402	3,945,016	48,636,888

F.—GENERAL STATEMENT of Expenses of the Mechanical Department, year
ended 30th June, 1876.

The miles run by Trains were.....	947,092
“ “ Engines.....	1,162,856
“ “ Cars.....	7,352,271
“ “ Snow-ploughs.....	12,892
	\$ cts.
The cost of locomotive power was.....	244,637 69
“ repairs to cars.....	95,353 08
“ oil and waste for packing.....	4,700 90
“ repairs to passenger cars.....	38,457 69
“ “ postal, express and baggage.....	6,907 60
“ “ freight cars and vans.....	49,988 39
The cost of locomotive power per 100 miles run by Trains was.....	25 83
“ “ “ “ Engines.....	21 03
“ “ “ “ Cars.....	3 32
The cost of repairs to cars per 100 miles run by Trains was.....	10 06
“ “ “ “ Engines.....	8 20
“ “ “ “ Cars.....	1 35
The cost of oil and waste for packing cars per 100 miles run by Trains was.....	43
“ “ “ “ “ Engines.....	40
“ “ “ “ “ Cars.....	6
Repairs to passenger cars per 100 miles run by them.....	2 13
“ Postal, Express and baggage.....	1 35
“ Freight, cars and vans.....	99

APPENDIX No. 25.

NORTH WEST COMMUNICATION.

PRINCE ARTHUR'S LANDING.

1st July, 1876.

Sir,—I have the honor to submit my report for the year ended 30th June 1876.

The number of passengers carried by the Contractors Messrs. W. H. Carpenter & Co., was—

From June 7th 1875 to close of season 1875.....	1,877
From opening of season 1876 to 30th June 1876.	295
Total.....	<u>2,172</u>

FREIGHT.

From June 7th 1875 to close of season 1875.....	968 tons.
“ May 23rd 1876 to 30th June 1876.....	139 “
Total.....	<u>1,107 “</u>

THUNDER BAY WHARF.

The additions to this wharf completed in the winter of 1874 and 1875, enable it fully to accommodate the large quantities of freight now landed for the Railway Contractors, for the Survey parties, and for local use.

ROADS.

Competent roadmen have been employed on the Thunder Bay Road, attending to repairs of culverts and the road bed. The road is now in good condition. The several portage roads and the Lake of the Woods Road are also in fair order.

BUILDINGS.

The immigrant houses and other buildings have been thoroughly examined and rendered as comfortable as possible. Every precaution against fire has been taken.

TUGS, BARGES AND BOATS.

During the season of 1875, the Contractors experienced difficulty in keeping the boats and some of the tugs afloat. Ship carpenters and boiler makers have been detailed to make the necessary repairs.

The cylinders of all the tugs were restored.

RIVER MALIGNE.

The dam at Island Portage has made the River Maligne navigable.

The repairs at the Maligne dam have raised the water of Sturgeon Lake to such a height, that there is no difficulty to be apprehended from the falling of the water of Deux Rivières Creek below the level required.

RAINY LAKE.

The steamer on Rainy Lake regularly performs her trips and is now in good working order

When the Railway is completed to River Savane, a result to be looked for during the fall of 1877, the expenses of keeping up the route will be greatly reduced. The tugs on Lakes Shebandowan and Kashabowie will then not be required and can be sent westwards.

I have the honor to be, Sir,
Your obedient servant,

DONALD M. GRANT,
Superintendent.

F. BRAUN, Esq, Secretary,
Public Works Department.

APPENDIX No. 26.

PACIFIC RAILWAY.

CANADIAN PACIFIC RAILWAY,
OFFICE OF THE ENGINEER IN CHIEF,
OTTAWA, 30th June, 1876.

SIR,—I have the honor to report on the progress made in surveying operations and in construction to the end of the fiscal year 1876.

SURVEYS IN THE WESTERN OR MOUNTAIN REGION.

1. A trial location survey was made during the season of 1875 from Waddington Harbor at the head of Bute Inlet, up the Valley of the Homathco, following the east branch, thence by the Chilancoh Chilicotin, Nazco, Blackwater and Chilancoh valleys to the junction of the latter with that of the Stewart, about 15 miles west of Fort George and 289 miles from Bute Inlet.

On the same route a trial location was made from the summit of the Yellow Head Pass westward, by the Yellow Head and Moose Lakes, a distance of 22 miles.

Two parties were left to continue the surveys on this route till they met. One of them to work westward from Moose Lake down the valley of the Fraser toward Fort George; the other eastward from the mouth of the Chilancoh by the valleys of the Stewart, Fraser and Willow Rivers. They employed the winter months, when the snow was deep, in making exploratory and trial surveys in advance; and as early as practicable in the spring of 1876 they recommenced the location surveys. By the 30th June they had completed an additional 64 miles, making a total of 375 miles located on that route, and leaving a gap of 175 miles to complete. The total length of the line from Bute Inlet to the summit of the Yellow Head Pass being about 550 miles.

2. Subsidiary to the above line and branching out from it in the Blackwater valley at a point 230 miles from the head of Bute Inlet, a trial survey was made of a line by the Salmon river valley, to Kamsquot Bay, on Dean Channel, about 6 miles from its head. The length of this line is 184 miles, being 46 miles shorter than that from the same point to Bute Inlet and with gradients and works generally favorable—there being only about 30 miles in the Cascade Mountains where they will be heavy.

3. A trial survey was made from Kemano Bay on the north side of Gardner Channel, about 20 miles from its head; following the Kemano valley 9 miles, thence

up a lateral ravine in a north easterly direction, to the summit of the Cascade Mountains which is reached at the 19th mile, the altitude being 4,019 feet above sea level. The survey was carried on to the first lake on the east side of the mountains, 22 miles from Gardner Inlet, whence the waters flow easterly to the Nechacoh and Fraser Rivers.

From the 9th to the 19th mile the surface rises from 200 feet to 800 feet per mile, the average being 384 feet per mile for 10 miles, and the ravine is subject to avalanches of snow and rock. This route was considered so unfavorable for railway construction, that the survey has not been extended.

4. An exploratory survey was made during the winter from the head of Gardner Channel up the Kitlope valley and through a low pass 21 miles further to the intersection of the Tchatquot river which flows into Dean Channel, when the party was forced to return, as the snow, 12 to 14 feet deep, was getting soft, and falling in avalanches from the mountains. They only reached an altitude of 1,150 feet, about one third the height of the summit of the pass.

It was the month of April when the survey was discontinued, and the surveyors on their return, found the Gardner Channel covered with ice from its head down, for a distance of 25 miles.

5. An examination was made of the Dean Channel and it was found that the ice extended from its head down to Kamsquot Bay, about 6 miles. The Indians residing there stated that they had never known the ice to extend further down.

6. An examination was also made of Bute Inlet, and no ice was found. The Indians residing near Waddington Harbor stated that they had never seen any fixed ice in Bute Inlet. But in the spring months there is some floating ice at the mouth of the Homatheo River brought down by the floods.

7. A location survey of the line from Esquimaud to Nanaïmo on Vancouver Island was commenced near the end of July 1875 and carried on till December of the same year, when the survey was discontinued owing to the inclemency of the weather. There remained only about 6 miles to complete and this portion has been laid down on the plan approximately from previous trial surveys.

The length of the line is 68½ miles which is greater than had been previously estimated. This is owing to the winding course of the located line which was found necessary to avoid heavy works.

From 2 to 4½ miles from Esquimaud there is a gradient of 1.50 per 100 equal to 79.2 feet per mile with heavy excavations partly in rock, and from the 8th to the 21st mile on the west shore of Saanich Inlet the work will be very heavy, consisting of deep rock cutting, some tunnelling through rock and bridging over deep ravines.

From the 24th mile northwards there is a gradient of 1.40 per 100 equal to 74 feet per mile for a mile and a quarter, followed by another 58 feet per mile for a mile and one third in length.

Throughout the rest of the line the gradients are undulating, the maximum being 1 per 100 and the works will be moderate.

Surveys projected.

The surveys in the Western or Mountain region projected for the present season and for which instructions have been given, are as follows :

1. The completion of the trial location from Tête Jaune Cache, to the neighborhood of Fort George.
2. A re-survey and location of the line through the heart of the Cascade Mountains by the Homathco river. These two surveys will complete the trial location of the line from Yellow Head Pass in the Rocky Mountains, to Waddington Harbor at the head of Bute Inlet.
3. A trial location survey from Kamsquot Bay in Dean Channel through the Cascade Mountains by the Kamsquot or Salmon River, a distance of about 52 miles and an exploratory survey, in continuation of this route by the Nechacoh and Stewart rivers, to the mouth of the Chilacoh, about 15 miles east of Fort George.
4. A trial survey of a proposed deviation of a portion of the line (referred to in section 2) between the Chilacoh and Blackwater valleys.

SURVEYS IN THE WOODLAND AND PRAIRIE REGIONS.

1. The line of railway which had been previously located for construction from the waters of Lake Superior at Fort William to a point $32\frac{1}{2}$ miles westward, has been extended to a point a little west of English River, a total distance of 113 miles.
2. The line between the Lake of the Woods at Rat Portage (Keewatin) and Red River, at Selkirk, had been previously located, but a trial location has been made of a more southerly line commencing at Rat Portage and re-joining the former line at about half the distance to Red River. This examination was made with a view of reducing the amount of work in construction, but as it lengthened the line several miles the former route has been adopted.
3. Exploratory surveys have been made of the country between English River and Rat Portage.
4. A trial location survey had been previously made from the crossing of Red River westward to Livingstone, a distance of 271 miles, and during the last season, exploratory surveys have been made from Livingstone to the McLeod River, a distance of 656 miles, and from Jasper House eastward down the Athabasca valley, a distance of 26 miles. Of the former 72 miles have been located.
5. An exploratory survey has been made from the Pic River (on a line generally parallel to the shore of Lake Superior,) to Sault Sainte Marie.

Surveys projected.

Instructions have been issued for carrying out during the present season, the following :

1. Continuing the location of the line from the longitude of Edmonton, to the Yellow Head Pass in the Rocky Mountains.

2. To complete the location of the line from English River to Rat Portage (Keewatin.)

3. To make an exploratory survey from a point on the line, about 30 miles west of Fort William, eastward by Dog Lake to Nepigon river.

4. A survey had been previously made along the shore of Nipigon Bay and Lake Superior to Pic River, and during the present season the exploratory survey will be continued easterly, in as nearly a direct line as practicable from Pic River to a point on French River, suitable for bridging the same.

5. A trial location survey from Cantin's Bay, about 20 miles up from the mouth of French River to the proposed Eastern terminus near Lake Amable du Fond.

WORKS OF CONSTRUCTION.

Pacific Telegraph Line.

1. From Selkirk (Red River) to Livingstone completed, except some clearing to be widened, and the extension from Selkirk to Winnipeg, 22 miles, also completed.

2. Livingstone to the longitude of Edmonton nearly completed.

3. Edmonton to connect with Telegraph line in British Columbia; a quantity of materials delivered.

4. Lake Superior to Selkirk (Red River) about one fifth of the work is executed.

GRADING AND BRIDGING.

1. Fort William to Sunshine Creek (contract No. 13) 32½ miles. About half of the work is completed.

2. Continuation to English River (contract No. 25) 80 miles. This contract was entered into on June 7th and very little work has been done.

3. Tenders have been received for grading the line between Rat Portage (Keewatin) and Cross Lake, a distance of 37 miles, but the contract has not yet been entered into.

4. From Cross Lake to Selkirk (Red River) contract No. 14—77 miles. A little over one fourth of this work has been executed.

Pembina Branch.

The length of this line is 85 miles, and the grading has been done from the boundary line at Emerson northward 54 miles, with the exception of the spaces left for trestle work and bridging. The work is at present discontinued.

Georgian Bay Branch.

This contract has been cancelled.

I have the honor to be, Sir,
Your obedient servant,

MARCUS SMITH,
Acting Engineer in Chief.

F. BRAUN, Esq., Secretary
Public Works Department.

APPENDIX No. 27.

SUPPLEMENTARY REPORT.

CANADIAN PACIFIC RAILWAY,
OFFICE OF THE ENGINEER IN CHIEF,
OTTAWA, 31st December, 1876.

SIR,—I have the honor to submit a Supplementary Report on the progress made in surveying operations and in construction, to the 31st December, 1876.

SURVEYS IN THE WESTERN OR MOUNTAIN REGION.

All the surveys projected for the season have been completed, and the following are the results.

1. A complete trial location line, from the Provincial Boundary, at the summit of the Yellow Head Pass, in the Rocky Mountains, to Waddington Harbor, at the head of Bute Inlet, a distance of 546 miles.

The snow fall during the winter of 1875-6 and the floods in the ensuing spring were excessively heavy (beyond all known precedent) and afforded valuable *data* to guide the Engineers in the location of the line for the railway.

On the bank of the River Fraser, between Tête Jaune Cache and the Grand Rapids (where the line leaves the valley) many of the stakes of the exploratory survey were swept away and land slides took place. Great care has therefore been taken in locating the line so that it will be secure from the action of floods. This, however, will entail heavier works and raise the cost of construction considerably above previous estimates.

Unexpected difficulties have also been met with in the angle between the Stewart and Fraser Valleys, where there will be some heavy earth excavations. But the nature of the country in this neighborhood is such, as to give scope for several deviations of the line, and one has been traced from the Chilacoh Valley, crossing the Fraser below Fort George, and rejoining the located line at Bear River, which, by using steeper gradients for a few miles, will, it is believed, avoid much of the heavy work and shorten the line several miles.

Very great improvements have been made in the location of the line through the Cascade Mountains. The Engineers were on the ground early in the season, and had a good opportunity of noting the effect of the snow slides—they have located the line to be as secure from these as possible, and it is not expected that any great length of snow sheds will be required.

The very heavy works in these mountains are now confined within a distance of 20 miles, between the 26th and 46th mile from the Head of Bute Inlet. These will consist of heavy rock excavations, with 8 tunnels, having an aggregate length of barely a mile and a quarter. Between Yellow Head Pass and the Cascades, there are 6 tunnels making together three quarters of a mile, so that the total length of tunnelling in the Mountain Region, of 547 miles, by this route, will not exceed two miles, and this may be still farther reduced.

The steepest gradients are in the Cascade Mountains, of which $13\frac{1}{4}$ miles are at the rate of 2 per 100, equal to 105.6 feet per mile; but this is in three lengths, with stretches of level between, of half and three quarters of a mile. There are three miles,

varying from 66 to 84 feet per mile. The maximum gradient on the rest of the line is 1 per 100, equal to 52.8 feet per mile.

2. The surveys to improve the line branching from the above, at a point in the Chilacoh Valley and following the Iscuttaesly, Blackwater and Salmon Rivers to Kamsquot Bay, on Dean Channel, have been completed with very favorable results.

By using gradients of 80 to 90 feet per mile, for about 5 miles, the line has been shortened considerably and much heavy work avoided, so that the works generally will be light to within 50 miles of the sea, where the line enters the Cascade Mountains. A careful trial location has been made of this section by which the very heavy works have been confined within a compass of 20 miles, where there will be heavy bridging and rock excavation, and 13 tunnels through rock having an aggregate length of 2 miles.

There are 8 miles of a gradient of 2.15 per 100, equal to $113\frac{1}{2}$ feet per mile, one mile of 105.6 feet, and 14 miles ranging from 66 to 92 feet per mile. The maximum gradient on the remainder is 1 per 100.

The length from Yellow Head Pass to Dean Channel by this route is 492 miles, or 55 miles shorter than to Bute Inlet.

Soundings have been made of Kamsquot Bay which show fair anchorage on a narrow belt parallel with the shore line, but beyond that the water is very deep. The bay is well sheltered.

3. The survey has been completed of an alternative line to the last mentioned, commencing at the mouth of the Chilacoh River, and following the Stewart, Nechacoh and Euchu Rivers; thence across the divide to the Salmon River, where it joins the line last described; and thence through the Cascade Mountains the line is common to both.

The gradients on this line, to the junction, are very easy and the works will be generally light, except in the canyons of the Nechaco where that stream passes through a range of hills, and in the divide between the Euchu and Salmon Rivers, where they would be heavy. This line is 15 miles longer than the former.

4. A line has been surveyed up the Valley of the Fraser, between Yale and Lytton, and it was found that the location survey previously made of the first 14 miles, up to the Suspension Bridge, could not be improved. But from that point to Lytton, 39 miles, this survey furnishes better data for arriving at an estimate of the character and cost of the works on this section than we previously possessed.

The rock cutting will not be so heavy as anticipated, but the bridging, retaining walls and other protection works will be heavy. This, with previous surveys, gives the length of line from Yellow Head Pass to Burrard Inlet 505 miles. By the Coquihalla Valley, 473 miles.

SURVEYS IN THE WOODLAND AND PRAIRIE REGIONS.

1. The location of the line for construction has been completed between the English River— $113\frac{1}{2}$ miles from Fort William,—and Rat Portage, 298 miles from the same point, and very great improvements have been made in the profiles, as compared with those from previous surveys.

The maximum gradient going eastward has been kept to 26.4 feet per mile, except in a few short lengths, where it is 40 feet, which it is hoped, may on a revision of the location be kept down to the lower grade. Going west, the maximum is 52.8 feet per mile. The works will on an average be moderate up to the 245th mile, from which to Rat Portage, a distance of 53 miles, the excavations will be nearly all in rock and on 34 miles of this they will be heavy; on the remainder they will be moderate.

2. The line from Rat Portage (Keewatin) to Livingstone, had been previously located for construction, so that there is now a continuous located line from Fort

William on Lake Superior to that point, a distance of 681 miles, of which 226½ miles are under contract for construction.

3. From Livingstone to a point in the longitude of Edmonton, a distance of 516 miles, a trial line has been surveyed. The position of the located line will not, however, vary much from this, as the country is generally very favorable for railway construction.

4. From the longitude of Edmonton to the Summit of the Yellow Head Pass in the Rocky Mountains, a distance of 260 miles, a continuous line has been surveyed, a portion of which, from Edmonton westerly to the crossing of the McLeod River, 140 miles, has been located; also from Jasper House westerly, up the Athabaska River, a distance of 20 miles, the line has been located.

The distance from Fort William, on Lake Superior, to the Yellow Head Pass is 1,456 miles, and thence to Bute Inlet, 546 miles, making a total of 2,002 miles from Lake Superior to Pacific waters, by that route.

5. The country has been explored from a point on the line now under construction between Fort William and Port Savanne on Lac des Mille Lacs, eastward by Dog Lake to Nipigon River.

From the information obtained, it is evident that a practicable line can be found, without excessively heavy works. Thence, along the shore of Nipigon Bay and Lake Superior to River Pic, an instrumental survey had previously been made, which showed a practicable line, but with heavy works.

6. In continuation of the above, the country has been explored from the River Pic, easterly as nearly as practicable in a direct line to a point on the River French, suitable for bridging it, with the exception of about 40 miles, between the Rivers Aux Sables and Vermilion, which could not be accomplished before the winter set in.

A great portion of this was found to be a broken, rocky country, with numerous lakes and swamps interspersed—But with long intervals of level, having the appearance of beds of ancient lakes.

The plans and levels show a feasible line, as far as explored, but it requires an instrumental survey to determine the exact character of the line and of the works of construction.

7. A trial location survey from Contin's Bay, on the River French, about 20 miles from its mouth, to the proposed Eastern Terminus, is in progress; at this date about 70 miles have been completed and the whole will be finished within a few weeks. A large proportion, if not the whole of this, will form part of the Trunk line.

WORKS OF CONSTRUCTION.

PACIFIC TELEGRAPH LINE.

1. The line has been erected between Selkirk (Red River) and a point in the longitude of Edmonton, a distance of 787 miles, and is in operation to within 20 miles of the latter point. There is however a considerable quantity of clearing yet to be done.

2. A Branch line has been completed and is in operation between Selkirk and Winnipeg, a distance of 22 miles.

3. The line is erected and in operation from Selkirk easterly, on the line of railway, 50 miles, and from Fort William, westerly 60 miles.

4. Telegraph materials have been delivered at various points on the line of the Western Section from Edmonton, to connect with the telegraph line in British Columbia.

GRADING AND BRIDGING.

1. The contract, No. 13, from Fort William to Sunshine Creek, 32½ miles, is nearly completed.

2. The works on contract No. 25, from Sunshine Creek to English River, a distance of 80 miles, are being vigorously prosecuted.

3. The contract No. 14 from Selkirk (Red River) eastward to Cross Lake, 77 miles, is a little more than half finished.

TRACK-LAYING AND BALLASTING.

1. This work, between Fort William and English River, 113 miles, is embraced in contract No. 25, and the rails have been laid from Fort William to a distance of 24 miles.

2. The track-laying and ballasting between Selkirk (Red River) and Kewatin (Rat Portage) is embraced in contract No. 15. No work has yet been done, but a quantity of rails and fastenings have been delivered at St. Boniface, Selkirk and other points on the Red River.

ENGINE HOUSE.

1. The Engine House at Fort William, contract No. 26, is about half finished.

ENGINEERS HOUSES.

1. Several of these houses have been completed and others are in course of erection. They are being put up at places selected for stations and will be used by the Engineers during the construction of the railway; afterwards for station buildings.

A schedule of all contract works entered into up to the 31st December 1876, is appended to this report.

I have the honor to be, Sir,
Your obedient servant,

MARCUS SMITH,
Acting Engineer in Chief.

F. BRAUN, Esq., Secretary,
Dept. Public Works.

CANADIAN PACIFIC RAILWAY.

SCHEDULE OF CONTRACTS entered into in connection with the construction of the Canadian Pacific Railway, up to 31st Dec., 1876.

Contract No.	Character of Works contracted for.	Date of Contract.	Name of Contractors.	Rates.	Approximate amount of Contracts.
				\$ cts.	\$ cts.
1	Construction of Telegraph Line, Fort Garry to Livingstone.....	1874.	Messrs. Sifton, Glass & Co.....	{ 492 00 perm. Woodland 189 00 per m. Prairie ..	{ 107,860 00 117,250 00
2	do Livingstone to Edmonton.....	do 30.	Mr. R. Fuller.....	213 18 per mile.....	272,250 00
3	do Edmonton to British Columbia.....	November 10.	Mr. F. J. Barnard.....	495 00 ".....	
4	do Lake Superior to Fort Garry.....	1875.	Messrs. Oliver, Davidson & Co.....	{ 590 00 perm. Woodland 435 00 per m. Prairie....	{ 243,150 00
5	Pembina Branch, Grading.....	1874.	Mr. Joseph Whitehead.....	0 22 per cubic yard....	200,000 00
6	Supply of Steel Rails.....	August 31.	Messrs. Guest & Co.....	{ 54 00 } p. ton, deliver- 55 24 } ed in Montreal.	546,200 00
7	do	1875.	Ebbw Vale Co.....	52 53 do ..	267,650 00
8	do	February 9.	Mersey Co.....	54 26 do ..	1,085,200 00
9	do	January 14.	West Cumberland Co.....	53 53 do ..	267,650 00
10	do	April 6.	do ..	48 67 F. O. B. Eng. Port	243,350 00
11	do	do ..	Naylor, Benson & Co ..	51 10 F. O. B. Liverpool	255,500 00
12	Georgian Bay Branch Construction	February 9.	Hon. A. B. Foster	Cancelled	
13	Port William to Shebandowan, Grading and Bridging, 45 miles. Subsequently arranged to terminate at Sunshine Creek, 32½ miles	do 27.			
14	Red River to Cross Lake, Grading and Bridging.....	April 3.	Messrs. Sifton, Ward & Co.....	Schedule prices.....	300,000 00
15	Cross Lake to Rat Portage—Grading and Bridging.....	do 3.	Messrs. Sifton, Ward & Co	do	402,950 00
16*	Red River to Rat Portage—Track laying and Ballasting		Contract not awarded		
16*	Extension of Canada Central Railway from the Village of Douglas to the Eastern Terminus.....	1874 Order in Council, Nov. 4....	Canada Central Railway Co....		1,440,000 00
17	Transportation steel rails to Vancouver Island	1875 April 8....	Anderson, Anderson & Co	9 73 per ton.....	48,866 67

	(May June July August Sept. October Sept.		22 / Red River Transportation Co... 3. Moses Chevette... 29. Merchants' Lake & River S. S. Co... 9. Patrick Kenny... 22. Holcomb & Stewart... 4. Sifton, Ward & Co... 6. Oliver, Davidson & Co...	15 00 " U. S. Cr. 6 20 per ton... 80 " 1 30 " 26 each...	1,600 00 31,300 00 14,560 00 3,000 00
18 / do		Manitoba.			
19 Building Engineer's house, P. A. District	June				
20 Transportation steel rails to Manitoba	July				
21 do	August	Lachine.			
22 do	Sept.	Kingston			
23 Railway Sleepers—56,000.	October				
24 Building Engineer's house, P. A. District.	Sept.				
25 Sunshine Creek to English River—Grading and Bridging.	1876				
26 Fort William to English River—Track laying and Ballasting.	June				1,037,000 00
27 Transportation of steel rails—	July				30,989 00
Montreal to Duluth or Fort William.	May		16. Merchants Lake & River Steamship Co		
Lachine do	do		do	4 50 per ton	
Kingston to Fort William.	do		do	4 50 "	
do to Duluth.	do		do	2 75 "	
do to Duluth.	do		do	3 25 "	
28 Transportation Rolling Stock, &c.—St. Paul or Duluth to Manitoba, viz:—	do		Red River Transportation Co	75 per 100 lbs.	
Fish plates and bolts, spikes, points, crossing and switch gear			do	35 per mile	
Each Railway Locomotive with tender from St. Paul or Duluth to Moorehead.			do	1 00 per 100 lbs.	
Each Railway Locomotive with tender from Moorehead to Manitoba.			do	15 per mile	
Each Passenger or Baggage Car from St. Paul or Duluth to Moorehead.			do	75 per 100 lbs.	
Each Passenger or Baggage Car from Moorehead to Manitoba.			do	10 per mile	
Each Box Car from St. Paul or Duluth to Moorehead.			do	08 "	
Each Flat Car do			do	75 per 100 lbs.	
Each Box Flat and Car, from Moorehead to Manitoba.			do	57 00 per ton.	8,560 00
Railway Spikes, 150 Tons, delivered at Fort William.			Cooper, Fairman & Co.		
29	1875				
30 Bolts and nuts 160 tons, delivered Montreal or Toronto.	March		do	101 00 "	16,160 00
31 Bolts and nuts for 5,000 tons rails delivered Vancouver Island	do		do	94 80 "	

* Government subsidy \$12,000 per mile for 120 miles, as per Order in Council, 4th November, 1874.

APPENDIX No. 28.

INTERCOLONIAL RAILWAY.

MONTREAL, 28th December, 1876.

CONDITION ON 1ST JANUARY, 1877.

SIR,—I now beg to report upon the progress of the works on the Intercolonial Railway.

I enclose (Appendix "A") a balance sheet shewing the expenditure on 30th June, 1876.

Also (Appendix "B") a balance sheet shewing the expenditure up to the 30th November, 1876.

Also (Appendix "C") a statement under the principal headings, of the total expenditure to 30th November, 1876.

Also (Appendix "D") a statement shewing the total outlay for the fiscal year 1872-3, 1873-4, 1874-5, 1875-6 and at 30th November, 1876.

From these statements it will be seen that the total outlay at each date was as follows:

At 30th June, 1873.....	\$14,520,073 89
" " 1874.....	17,937,735 76
" " 1875.....	20,593,914 96
" " 1876	21,582,188 14
" Nov. " 	22,112,083 29

The line between Truro and Amherst, 76 miles, was opened on the 9th November, 1872.

From Rivière du Loup to St. Flavie, 84 miles, was opened on the 2nd November, 1874.

From Moncton to Campbellton, 155 miles, was opened on the 8th November, 1875.

And from Campbellton to St. Flavie, 105 miles, was opened for freight traffic on the 12th June, 1876, and express passenger trains were put on on the 2nd July, 1876, when the entire line was brought into working order.

This completed a continuous railway of the gauge of 4 ft. 8½ inches between the western limits of Canada on Lake Huron and the Detroit River and Halifax and St. John on the Atlantic Ocean.

The ballasting of the line was not completed at the time it was opened throughout, but this work was energetically proceeded with during the summer and completed at the close of November 1876.

To enable this to be done 3 steam excavators, 25 engines and upwards of 500 platform cars were used.

The ballasting of the whole line has been most thoroughly done, and this will enable the line to be worked in an economical manner.

A large outlay has been incurred for snow sheds and fencing.

About 10 miles of snow sheds and 25 miles of fencing have been constructed between Rivière du Loup and Moncton. It is expected that this will very materially aid the running of the trains, but it is more than likely that the experience of the present winter will show that some additional shedding and fencing will be desirable.

A number of the most approved description of snow ploughs and ice scrapers have also been provided. In fact, every reasonable precaution has been taken to prevent as much as possible delays to trains from snow storms.

The clay cutting at Trois Pistoles slipped last spring to such an extent, that to prevent the constant blocking of the road, it became necessary to remove about 25,000 yards of stiff blue clay.

This will prevent for several years at least any further trouble at this very heavy clay cutting.

When the line was opened a much more considerable traffic developed itself than had been expected, and it was necessary at once to provide a large addition to the siding accommodation at the principal stations, such as Riv. du Loup, St. Flavie, Campbellton, Miramichi and Moncton.

These are now in operation with very satisfactory results.

From the same cause increased buildings were necessary at several places; also a largely increased water service. Sheds and trestles for the convenient handling and storage of coal and a variety of accommodation to properly conduct a rapidly growing traffic.

Convenient refreshment rooms have been established at Trois Pistoles, Campbellton and Moncton.

A small shop suitable for the repairs of engines has been established at Riv. du Loup, and a shop properly supplied with machinery for the repair of cars at Campbellton.

A considerable traffic in fresh fish was established, and to provide proper facilities for this, refrigerator cars were built at Moncton, and supplied with Miller platforms and air brakes to enable them to be run on fast passenger trains.

They have proved very successful.

At several points on the railway buildings have been erected by private parties for freezing salmon in summer, and this gives every prospect of yielding a large traffic.

The developement of the traffic required an additional supply of box freight cars; orders have therefore been given to build 400 at the Moncton shops. This will enable nearly all the material on hand, arising out of the change of gauge to be used.

The cars are now being turned out daily. 300 cars have been contracted for at moderate prices after tenders had been taken from all the car shops in the country.

If the traffic continues to increase, according to present indications, an additional supply of passenger cars and engines will be required at an early day.

The arrangement for the transfer of the Mails to and from the Ocean Steamers at Rimouski was commenced early in June 1876 and continued throughout the summer to the end of October. It proved of great utility in expediting the mails both to the Lower Provinces and to the West.

From the beginning of the present month the Ocean Mails have been landed from and put on board the Ocean Steamers at Halifax.

The service has, so far, been performed in a satisfactory manner.

The mails after being landed from the steamer have been sent by special train from Halifax to Rivière du Loup, the distance being 561 miles. The time occupied has been less than 17 hours or an average speed of upwards of 32 miles an hour.

At Rivière du Loup the train is taken on by the Grand Trunk Co. The delivery of the mails has so far been materially expedited by this arrangement.

The whole of the work of constructing the Intercolonial railway is now completed and it is in every respect a first class railway both as regards roadway and equipment, and is consequently capable of being worked in an economical manner.

This is the last report which will be necessary in regard to the construction of the Railway.

The entire line was handed over to the Working Department on the 1st July 1876, and future reports will deal with the working of the entire system of railways from Rivière du Loup to Halifax and St. John, comprising a total length of 714 milles.

I have the honour to be, Sir,

Your obedient servant,

C. J. BRYDGES.

Gen. Supt. of Gov. Rys.

F. BRAUN, Esq.,
Secretary, Ottawa.

APPENDIX A.

INTERCOLONIAL RAILWAY.

DR. BALANCE SHEET at 30th June, 1876. Per General Ledger. CR.

	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Buildings.....			679,585 88		
Engineering and Survey.....			1,272,913 91		
Legal expenses, Land Survey and Land Valuation.....			72,933 22		
Management.....			151,680 01		
Printing, Advertising and Stationery.....			27,134 54		
Right of way.....			269,330 01		
Rolling Stock.....			1,564,252 82		
Works and Permanent Way.....	16,541,606 96				
Appropriation for Sections 1 to 7 inclusive.....	193,342 94				
Contract No. 3, F. X. Berlinguet & Co.....					
do 6, do.....			97,112 97		
do 9, J. B. Bertrand & Co.....			63,104 60		
do 16, do.....			25,091 89		
do 12, do.....			95,090 32		
do 13, W. E. Macdonald & Co.....			105,141 95		
do 15, King & Gough.....			113,925 65		
do 17, S. Parker Tuck.....			24,255 21		
do 22, C. Cummings & Co.....			11,344 59		
do 23, Sutherland, Grant & Co.....			168,143 71		
			95,135 34		
			798,348 23		
			16,532,296 12		
Thos. Boggs & Co. Advance.....					17,710 84
R. H. McGreevy do.....					55,996 49
					73,707 33
					16,607,003 45
Intercolonial Railway.....					944,923 01
					17,551,928 48
					21,522 17
					41,888 00
					21,582,188 14

The Dominion of Canada
Brown, Brooks & Ryan (Paid 5th July 1876)
Duncan McDonald; percentages retained

21,526,598 31

Telegraph line	16,830 00		
Mail tender, Rimouski	16,804 00		
H. D. Finlay, Paymaster			
Balance on hand to pay for land taken for Station houses, water service and Ballast pits in New Brunswick	2,207 45	35,841 45	
		21,626,598 31	21,626,598 31

THOS. C. DUPLESSIS,
Accountant.

INTERCOLONIAL RAILWAY OFFICE,
OTTAWA, 30th June, 1876.

APPENDIX B.
INTERCOLONIAL RAILWAY.

DR. BALANCE SHEET at 30th November, 1876. Per General Ledger. CR.

	\$	cts.	\$	cts.	\$	cts.
Buildings.....			746,563	76		
Engineering & Survey.....			1,279,780	02		
Legal expenses, land survey and land valuation.....			74,341	54		
Management.....			156,489	17		
Printing, advertising et stationery.....			27,161	69		
Right of way.....			272,420	30		
Rolling stock.....			1,575,656	84		
					4,132,413	32
Works and Permanent Way.....	15,890,373	32				
Appropriation for Sections 1 to 7 inclusive.....	193,342	94				
Contract No. 3, F. X. Berlinguet & Co.....	97,112	97				
do do 6, do.....	63,104	60				
do do 9, J. B. Bertrand & Co.....	25,091	89				
do do 15, do.....	95,090	32				
do do 12, Sumner & Somers.....	105,141	95				
do do 13, W. E. Macdonald & Co.....	113,925	63				
do do 16, King & Gough.....	24,299	36				
do do 17, S. Parker Tuck.....	17,364	79				
do do 22, C. Cummings & Co.....	168,143	71				
do do 23, Sutherland, Grant & Co.....	95,135	34				
			804,410	58		
			16,888,126	84		
Thos. Boggis & Co., Advance.....	17,710	84				
R. H. McGreevy.....	58,164	98				
			75,875	82		
			16,964,002	66		
Eastern Extension Railway.....	944,923	01				
			17,908,925	67		
Telegraph Line.....					16,930	00

The Dominion of Canada.....
Duncan Macdonald, percentage retained on contract for track laying and ballasting.....

\$ 22,112,083 29
cts. 2,522 17

Mail Tender, Rimouski.....	91 43	19,169 72	
Bank of Montreal, contingent account.....	1,040 50		
Montreal Office.....		1,131 93	
H. D. Finlay, Paymaster. Balance in hands to be accounted for in December next.....	2,589 71		
Robert F. Tims, Accountant, Balance in hands to be accounted for in December next.....	33,545 11	36,134 82	
		22,114,605 46	22,114,605 46

THOS. C. DUPLESSIS,
Accountant.

INTERCOLONIAL RAILWAY OFFICE,
Ottawa, 30th November 1876.

APPENDIX C.

INTERCOLONIAL RAILWAY.

STATEMENT shewing the total expenditure under each special service to 30th November, 1876.

Service.	Amount.	Total.	Grand total.
	S cts.	\$ cts.	\$ cts.
Buildings :—			
Amherst Station.....	13,436 14		
Car Sheds.....	10,125 06		
Engineers' Houses.....	32,212 65		
Engine do.....	162,771 31		
Freight do.....	10,766 39		
Flag Station do.....	1,300 00		
Moncton Station Buildings.....	173,831 52		
Painsec Junction.....	2,049 39		
Passenger and Refreshment Houses.....	45,018 55		
Station Houses.....	163,434 78		
Tank Houses and Fuel Sheds.....	114,008 70		
Coal Trestles.....	7,001 14		
Buildings Expenses.....	8,607 62		
		746,563 76	
Engineering.....		1,279,780 02	
Legal Expenses, Land Survey and Land Valuation.....		74,341 54	
Management.....		156,489 17	
Printing, Advertising and Stationery.....		27,161 69	
Right of Way.....		272,420 30	
Rolling Stock :—			
Locomotive Engines.....	653,478 75		
Passenger Cars, First Class.....	88,937 92		
Do Second Class.....	27,021 05		
Postal and Baggage Cars.....	34,334 82		
Box Freight Cars.....	189,225 70		
Cattle Cars.....	15,130 32		
Platform Cars.....	448,793 86		
Coal Cars.....	74,000 00		
Refrigerator Cars.....	8,644 90		
Conductors Vans.....	11,460 70		
Snow Ploughs.....	18,760 36		
Expenses.....	5,868 46		
		1,575,656 84	
Works and Permanent Way :—			
Contracts, Grading Works, Fencing, Drainage, Sidings, Road Diversions, &c.	10,158,727 29		
Appropriation for Sections Nos. 1 to 7 inclusive	193,342 94		
		10,352,070 23	
Branch Lines and Harbors.....	59,325 93		
Snow Sheds and Fences.....	184,093 12		
		243,419 05	
Contract No. 3, F. X. Berlinguet & Co.....	97,112 97		
Do 6, do.....	63,104 60		
Do 9, J. B. Bertrand & Co.....	25,091 89		
Do 15, do.....	96,090 32		
Do 12, Sumner & Somers.....	105,141 95		
Do 13, W. E. Macdonald & Co.....	113,925 65		
Do 16, King & Gough.....	24,299 36		
Do 17, S. Parker Tuck.....	17,364 79		
Carried forward.....	541,131 53	10,595,489 28	4,132,413 32

APPENDIX C—*Concluded.*

INTERCOLONIAL RAILWAY—Statement showing the total expenditure under each special service to 30th November, 1876.—*Concluded.*

Service.	Amount.	Total.	Grand total.
	\$ cts.	\$ cts.	\$ cts.
<i>Brought forward</i>	541,131 53	10,595,489 28	4,132,413 32
Contract No. 22, C. Cummings	168,143 71		
Do 23, Sutherland, Grant & Co.....	95,135 34	804,410 58	
Advances to Contractors as per Balance Sheet.....		11,399,899 86	
		75,875 82	
		11,475,775 68	
Iron Bridging	780,722 47		
Rails and Fastenings.....	2,905,728 81		
Cross Ties.....	363,883 68		
Tracklaying and Ballasting.....	1,437,892 02	5,483,226 98	
Eastern Extension Railway.....		16,964,002 66	
		944,923 01	17,908,925 67
Telegraph Line		16,830 00	
Mail Tender, Rimouski.....		19,169 72	35,999 72
Bank of Montreal, Contingent Account.....		91 43	
Montreal Office.		1,040 50	1,131 93
H. D. Finlay, Paymaster, Balance in hands..... {	To be accounted for in Dec. next. }	2,589 71	
Robert F. Tims, Accountant do		33,545 11	36,134 82
Less, amount at Credit in Balance Sheet of Duncan MacDonald percentage retained in Contract for Tracklaying and Ballasting.....			22,114,605 46
			2,522 17
			22,112,083 29

THOS. C. DUPLESSIS,
Accountant.

INTERCOLONIAL RAILWAY OFFICE,
OTTAWA, 30th November, 1876.

APPENDIX D.
INTERCOLONIAL RAILWAY.

COMPARATIVE STATEMENT shewing the Total Expenditure for the construction of the Intercolonial Railway at the 30th June, 1873, 30th June, 1875, 30th June, 1876, and 30th November, 1876.

	Total at 30th June, 1873.	Total at 30th June, 1874.	Total at 30th June, 1875.	Total at 30th June, 1876.	Total at 30th Nov., 1876.
	\$	\$	\$	\$	\$
	cts.	cts.	cts.	cts.	cts.
Buildings.....	372,837 04	498,395 02	557,709 78	679,585 88	746,563 76
Engineering and Survey.....	1,074,397 14	1,207,458 94	1,258,910 54	1,273,913 92	1,279,780 93
Legal Expenses, Land Survey and Land Valuation.....	60,421 21	62,979 34	66,153 40	72,933 22	74,341 54
Management.....	96,249 54	116,734 64	133,847 84	151,680 01	156,489 17
Printing, advertising and stationery.....	24,473 12	26,231 66	26,759 93	27,134 54	27,161 69
Right of way.....	199,724 39	234,577 12	245,156 74	269,330 01	272,420 30
Rolling Stock.....	785,278 51	1,122,183 48	1,425,287 92	1,664,232 82	1,575,656 84
Works and permanent way.....	11,868,949 13	14,641,259 00	16,872,588 81	17,581,926 46	17,906,925 87
Cordwood.....	8,654 00	8,654 00	16,830 00	16,830 00	16,830 00
Telegraph line.....	6,480 00	16,830 00	300 00	300 00	19,169 72
Temporary running arrangements.....	2,666 96	4,361 70	.....	.....	.....
Receiver General (special deposit).....	300 00	300 00	.....	.....	.....
Mail Tender, Rimouski.....	.....	.....	.....	.....	.....
Open Accounts (per Balance Sheet).....	.....	.....	.....	.....	.....
Paymasters' balances do.....	20,042 85	2,770 86	.....	.....	.....
	14,520,073 89	17,937,735 76	20,603,544 96	21,626,598 31	22,114,605 46
Less Credits per Balance Sheet.....	.....	.....	9,630 00	44,410 17	2,520 17
	14,520,073 89	17,937,735 76	20,593,914 96	21,582,188 14	22,112,083 29

THOMAS C. DUPLESSIS,
Accountant.

INTERCOLONIAL RAILWAY OFFICE,
OTTAWA, 30th November, 1876.

APPENDIX No. 29.

FORT FRANCES CANAL.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 26th Dec. 1876.

SIR,—The following report on the Fort Frances Canal has been withheld up to the present time, for the purpose of supplying the Department with the latest information in regard to the condition and progress of the work.

I proceeded to Fort Frances as requested by your letter No. 36,287 of the 3rd of last August, and remained there about a fortnight up to the 2nd of September, during which time I laid out the work to be done, according to the new design contemplated by the plan you refer to with such modifications as were found necessary; a specification of the same was afterwards prepared and given by me together with written instructions to Mr. H. Thompson, the officer then in charge, during the absence of Mr. H. Sutherland, the Superintendent, who was engaged on other works of the North-West Territory.

ORIGINAL DESIGN.

The original design according to which the works were laid out in 1875, under the directions of Mr. J. Hazlewood, one of the district engineers of the Canadian Pacific Railway, contemplated the construction of 2 combined locks, each 200 feet in length and 40 feet in width, with 7 feet depth of water on the sills, the total lift being 23½ feet. The rock cut of the chambers was to be lined with wood-work.

According to the new design, one lock has been substituted for the 2 combined locks.

HIGH AND LOW WATER LEVELS.

The plan prepared in accordance with the new design is based on the high and low water levels shown on the profile in the report No. 51,934 of the 5th of July 1875, by Mr. H. F. Mortimer the Engineer who first laid out the work.

In October 1875, Mr. Hazlewood found the low water levels to be 14 inches less at the upper entrance, and 21 inches less at the lower entrance of the proposed canal than represented on the plan.

I therefore appended to the specification, for the guidance of the person in charge of the work, a list of levels showing the elevations of the principal portions thereof based on the highest and lowest water observed up to last September.

As it is important to know the rise and fall of the water during the season of navigation for as long a period as possible, I instructed Mr. Thompson to keep a gaugo register for the future in order to ascertain whether the elevations I propose for the lock coping, banks, crib-work and bed of the proposed canal have to be modified or not.

THE FORT FRANCES CANAL.

The Fort Frances Canal, which is being constructed by day's labour, is situated at one of the Hudson Bay Company's trading posts, of which it bears the name, and is 237 miles north westward from Thunder Bay, Lake Superior, and 215 miles south eastward from Winnipeg (Fort Garry) by the Dawson route.

It is located on a projecting point of the Canadian shore, near the outlet of Rainy Lake, opposite the Grand Falls of Rainy River which forms part of the boundary between Canada on the north side and the State of Minnesota on the south side.

The upper stratum of this point consists of reddish clay, and the under stratum of grey granite containing a considerable quantity of hornblend.

The object sought by the construction of this work, is to connect the navigation from Kettle Falls at the head of Rainy Lake down to the North-West Angle of the Lake of the Woods, a distance of 164 miles, for vessels of 7 feet draught of water, during the time of low water, in order to afford greater facilities, for the transportation of immigrants to the North West Territory and of laborers and supplies for the construction of a portion of the Canadian Pacific Railway.

THE CANAL.

The canal is to be about 800 feet in length and 36½ feet in width at the narrowest parts.

At the upper entrance, the north east side is to be wharfed for a distance of 174 feet, and the south west side is to be provided with a range of guide-piers for the protection of vessels against the current which might otherwise drift them towards the Falls; the outer end of the guide-piers and the wharfing opposite thereto, are to be about 66 feet on either side from the centre line of the canal.

The lower entrance is to be, at least 60 feet in width between the outer guide-piers and stonework.

The canal throughout is to be excavated to a depth of not less than 8 feet below the lowest summer water level.

THE LOCK.

The lock is to be 200 feet in length, between the gate quoins, and 36 feet in width between the side timbers; the depth of water on the lower mitre-sill is to be 7 feet beneath the lowest summer water level; the top of the upper mitre-sill is to be 11½ feet above that of the lower one, or 19 $\frac{42}{100}$ feet below the low water level of Rainy Lake.

The lift will vary from 22½ feet during high water to 24 feet during low water according to past observation up to last September.

Guard timbers, with or without planking, as may be directed, are to be bolted to the sides of the rock cut of the chamber, which is to be raised to the coping level by means of cribwork. No masonry is to be used unless absolutely required.

EXCAVATION.

The excavation of the canal and lock pit, will probably amount to 28,000 cubic yards, one third clay and the remaining two thirds rock of a very hard nature, for the drilling of which the tools require to be sharpened once or twice for every foot of boring.

PROGRESS OF THE WORK.

Mr. Sutherland having been appointed superintendent in the spring of 1875, proceeded to Fort Frances which he reached on the 14th of June that year with a force of 46 men and 4 horses, together with a portion of the supplies.

Until the completion of the survey by Mr. Mortimer on the 29th of the same month, he employed the men in cutting and preparing timber for the coffer dams, piers, buildings, and scows, &c., and in erecting a lodging house, a warehouse and an office on the Government reserve.

Several buildings, comprising a blacksmith shop, an engine house, stables, closets, bath house, lako house and root house, together with the necessary plant, tools, machinery, supplies, 5 horses and 2 cows, were afterwards provided.

The force was also increased to 65 men towards the later end of June, an average of 100 men in July and August, and of about 90 during the autumn months, until the 8th of December when nearly all, except the paymaster, book-keeper and 1 man were either discharged or transferred to Mr. Mortimer for the Canadian Pacific Railway Survey.

This year, additional plant, machinery and supplies were provided, the work having been resumed during the latter part of June with 34 men, and continued with about 80 in July and August; in October the force was diminished to 56, this number being considered sufficient until the opening of navigation next year.

WORK DONE.

Apart from the construction of the buildings for which the lumber had to be manufactured, the necessary timber, consisting chiefly of red pine mixed with white from 8 to 12 inches in thickness, has been cut, prepared and deposited in the vicinity of the canal.

The oak and pine timber for the lock, being of greater dimensions than what could be found, will have to be procured at a greater distance from the Fort than the other; the oak or elm which may be used as its substitute will probably have to be purchased at and brought from Thunder Bay or Red River, a distance of more than 200 miles.

A coffer dam of crib-work banked on the outside with clay has been constructed at the upper entrance, so that one of its sides will form a portion of the canal bank near the Falls.

The crib-work for the coffer dam at the lower entrance was commenced and partly sunk last August.

Most of the earth excavation has been completed and has been used in connection with the dams and proposed wharfing; it was commenced on the 2nd of July 1875.

Nearly $\frac{1}{2}$ of the rock cutting will be finished at the close of the present year; it has been deposited chiefly by means of cars and a railway track upon the face of the river bank near the lower end and on the east side of the canal. The rock excavation was commenced on the 20th of August 1875.

With the plant now on hand, and especially the steam drills and electric battery which were brought into operation chiefly during the past summer, it is probable that most of the work will be completed in the course of the next two years, providing that it can be carried on successfully during winter.

S. H. FOWLER'S MILL SITE.

Before the canal is completed it is advisable that the Government should deal with Mr. S. H. Fowler respecting his mill site which is in close proximity to the lock, and that the channel of the River and Lakes to be connected, above and below the Fort, should be improved for the reasons hereinafter stated.

S. H. Fowler's mill site on the east bank of Rainy River is situated between the Fort Frances canal and the Grand Falls.

The site is occupied by a saw mill, a dwelling house and a lumber yard.

It appears that Mr. Fowler had only a squatter's right on the site up to 1873, but that he has since obtained a renewable lease of it for 21 years.

The conditions of the lease might probably be ascertained from the Minister of the Interior.

If this property is not revertible to the Government by right or by purchase, a Swing bridge across the lock or a Ferry scow will have to be provided for the accommodation of the mill traffic.

EXPENDITURE.

The expenditure charged in the books of the Department against the Fort Frances Canal, is as follows, viz:

During the fiscal year 1874-75	\$ 7,411 91
“ “ “ 1875-76.....	67,142 35
From 1st July to 20th Dec. 1876	34,119 98
	\$108,674 24

The above comprises

Supplies furnished C. P. Survey per statement rendered by the Superintendent Nov. 1876.....	\$ 8,405 29
Live stock.....	1,296 55
Plant	10,897 61

also the supplies required for the next 6 or 7 months.

MEDICAL AID SUPPLIED.

As there was no doctor at Fort Frances although it contains 150 resident settlers, and as none could be brought to the Fort in case of accidents or disease amongst the officials and workmen in less than a fortnight from Thunder Bay or Fort Garry, at distances of 237 and 215 miles from the works, Dr. J. Robinson was appointed for the purpose of giving such medical and surgical aid as might be required. He arrived at Fort Frances on the 17th August, 1875, since which date his services have proved highly useful both to the force employed on the canal and on a portion of the Canadian Pacific Railway Route.

IMPROVEMENT OF RAINY RIVER.

The object for which the Fort Frances Canal is being constructed cannot be wholly attained, unless Rainy River is improved so as to ensure the requisite draft, and the ascent of vessels against the current in the rapids.

The main obstacles to the navigation appear to be:

1. The deficiency of water in the channel, especially in the rapids $1\frac{1}{2}$ miles above Fort Frances and at various places in the river below the Fort.
2. The swift current at the head of the proposed canal, of the Manitou rapids 36 miles, and of the Long Sault rapids 42 miles below the Fort.
3. The crooked channel and the shoals of the Long Sault.

During the limited time at my disposal, I collected the best information I could obtain respecting the subject and made a hasty examination of the Manitou and Long Sault in company with Mr. Thompson. We went down the river in a small boat towed by one of the Government tug steamers of about 3 feet draught and 6 horse power, with a speed of 7 miles an hour for a distance of 42 miles as far as the head of the Long Sault, beyond which it was not considered advisable to venture with the steamer. In returning we had great difficulty in hauling the steamer with her full supply of steam up the pitch at the head of the Manitou. We were 6 hours on the downward and 12 on the upward journey.

According to Capt Cameron of the Rainy Lake steamer the low water draft

through the Lake and River above the Fort, a distance of 44 miles, does not average more than $4\frac{1}{2}$ feet.

Between the Fort and the foot of the Long Sault, a distance of about 45 miles, the draft during low water is about 7 feet on the first 12 miles, 6 feet on the next 6 miles, $5\frac{1}{2}$ feet on the following 10 miles and 5 feet in the remainder, according to the Captain of the small tug steamer which plies on that section of the river.

At the Manitou there appears to be no difficulty as regards the depth of the water at the head of the Rapid, but there is a declivity of a few feet in a short distance and a current of about 5 miles an hour or more, against which a steamer of small power cannot ascend without being hauled by means of a rope and capstan or otherwise.

At the head of the Long Sault there is also a swift current, too much for an ordinary steamer to overcome.

In the Long Sault Rapids some 2 miles or more in length, the worst portions of which I sounded to within $\frac{1}{4}$ of a mile of the wharf to which the Lake of the Woods steamer ascends, I found 8 feet of water on two of the shoals; this represents a depth of $3\frac{1}{2}$ feet during the lowest observed stage of the water, the river surface at that time being $4\frac{1}{2}$ feet higher than in October 1875.

MODE OF IMPROVEMENT.

So far as I can judge at present, the most effectual mode of connecting the navigation of Rainy Lake with that of the Lake of the Woods, apart from the canal in progress of construction, will be :

1st. To raise the water in Rainy Lake by means of a dam or pier closing or contracting the channel at the head of Rainy Falls.

2nd. To construct a lock and dam at the foot of the Long Sault, so as to raise the water above the Manitou, and in the remainder of the river up to the lower entrance of the canal.

3rd. Before the water is raised, to remove during the season of low water in spring and autumn the boulders obstructing the channel.

No definite scheme nor estimate can however be submitted unless the necessary levels, soundings and measurements are taken along the entire line of the proposed navigation.

In the mean time a pier should be built at the head of the Manitou and another one at the head of the Long Sault so as to enable vessels to be hauled upward against the current.

The channel in various parts of the river, and especially in the Long Sault Rapids, should be straightened, widened and deepened by the removal of the boulders which obstruct it, and buoys should be placed along the intricate parts of the channel.

INSTRUCTIONS RESPECTING EXAMINATION OF RAINY RIVER.

As it is important to ascertain the nature and extent of the principal obstructions, and the cost of removing or overcoming the same before the canal is completed, I instructed Mr. Thompson on the 1st of last September, to examine the worst portions of the channel during the season of lowest water, which occurs generally in February, April or November, and to furnish the Department with a report thereon together with an estimate of the probable cost of the improvements most urgently required.

OPENING AND CLOSING OF NAVIGATION.

The opening and closing of navigation between Sault Ste. Marie and the North West Angle of the Lake of the Woods being a subject to be considered in connection

with the improvement of the navigation upon the lakes along the Dawson route between Lake Superior and Fort Garry, I endeavoured to obtain the best information I could with reference thereto.

The following are considered as the general dates of the opening and closing of the navigation in the following localities :

	Opening.	Closing.
Sault Ste. Marie, foot Lake Superior.....	1st May.	1st December.
Prince Arthur's Landing, Thunder Bay, Lake Superior.....	6th "	26th November.
River Kaministiquia present terminus of Canadian Pacific Railway, Lake Superior.	6th "	10th "
Chain of Lakes along the Dawson route.....	25th "	20th October.

Copies of the instructions, plan and specification given to the officer in charge of the Fort Frances Canal are furnished herewith.

I have the honor to be, Sir,
Your obedient Servant,

G. F. BAILLAIRGÉ,
Assistant Chief Engineer.

F. BRAUN, Esq.,
Secretary, Public Works.

LEVELS for lock Fort Frances, in progress of construction, referred to H. J. Mortimer's bench mark on post in old bank of river, at upper end of lock. Work commenced 1st July, 1875.

Where Situated.	Former Plan No. 51,932 and Profile No. 51,931 of H. J. Mortimer, 5th July, 1875.		Present Plan with modifications to suit low water, found by J. Hazlewood, Oct, 1875.	
	Below bench mark on post, in old bank of river.	Elevation above sea. Say	Below bench mark on post, in old bank of river.	Elevation above sea. Say
<i>Beginning at East or Upper End:--</i>	ft.	ft.	ft.	ft.
Level of B. M. or coping level.....	On Profile. 0-00	1100-50	0-00	1100-50
do High water, upper reach.....	2-21	1098-29		
do Low water, do.....	5-94	{ On plan. }		
do High water, do 15th July, 1876, top of gates.....			1-67	1098-83
do Water surface, do 25th Aug., 1876.....			3-75	1096-75
do Low water—Oct., 1875, per Hazlewood, 14 inches lower than shown on plans.....			7-11	1093-39
do Bed of upper entrance down to upper recess.....			15-11	1085-39
do Bed of upper recess, beneath timbers.....			23-86	1071-64
do Top of flooring, upper recess.....			27-44	1073-06
do Top of upper Mitre Sill.....	12-94	1087-56	26-53	1073-97
do Bed of lock chamber, between recesses.....			38-94	1061-56
do Bed of timbers, lower recess.....			40-36	1060-14
do Top of flooring do.....			38-94	1061-56
do Top of lower Mitre Sill.....	36-28	1064-22	33-03	1062-47
do Bed of lower entrance below lower recess.....			39-03	1061-47
do High water, lower reach.....	24-23	1076-22		
do Low water, do.....	29-28	{ On plan. }		
do High water, do July, 1876.....			24-60	1076-50
do Water surface do 25th Aug., 1876.....			26-51	1073-99
do Low water, do Oct., 1875, per Hazlewood, 21 inches lower than shown on plans.....			31-03	1069-47
do B. M. on rock at lower end.....	{ This bench to be checked. 18-88	1081-62	Per scale on new plan. 18-88	1081-62

Lift of Lock.

Low water below Lock..... 29-28
 Do above " 5-94
 Former lift. 23-34 per Mortimer, July 1875.

Low water below Lock..... 31-03
 Do above " 7-11
 Present lift..... 23-92 per Hazlewood, Oct. 1875.

APPENDIX No. 30.
DEPARTMENT OF PUBLIC WORKS.

Name.	Occupation.	Locality.	Salary.	Remarks.
OFFICE STAFF.			\$ cts.	
T. Trudeau	Deputy of the Minister.....		4,100 00	
F. Braun	Secretary		2,350 00	
John Page.....	Chief Engineer.....		4,000 00	
G. F. Baillairgé.....	Assistant Chief Engineer.....		3,000 00	
T. S. Scott	Chief Architect		3,000 00	
J. Baine.....	Accountant		2,200 00	
J. W. Harper.....	Paymaster		1,530 00	
H. A. Fissiault.....	1st Class Clerk		1,800 00	
L. E. St. O. Chapleau.....	do		1,600 00	
W. Buckingham	do		1,500 00	
F. H. Ennis.....	do		1,500 00	
C. McCarthy.....	do		1,600 00	
O. Dionne.....	do		1,500 00	
A. P. Bradley.....	do		1,500 00	
T. B. French.....	Senior 2nd Class Clerk.....		1,400 00	
W. J. Tilley.....	do		1,300 00	
J. F. W. Bonneville.....	do		1,300 00	
S. McLaughlin.....	do		1,350 00	
C. F. Street	do		1,250 00	
A. J. Duffy.....	Junior 2nd Class Clerk.....		850 00	
L. Lefebvre.....	do		900 00	
L. N. Fortier	do		850 00	
A. E. Evanterel	do		1,050 00	
L. H. Filteau.....	do		850 00	
L. D. Dion.....	do		850 00	
F. A. Dixon.....	do		850 00	
E. Bance.....	do		850 00	
W. Buckingham.....	Private Secretary.....		600 00	
J. Deslauriers.....	Messenger		500 00	
M. Walsh.....	do		500 00	
H. Potvin.....	do		500 00	
C. Neville.....	do		17 00	Per month.
LACHINE, BEACHARNOIS, CHAMBLEY, AND RIVER OTTAWA CANALS.				
J. G. Sippell.....	Engineer-in-Charge.....		250 00	Per month.
ST. LAWRENCE CANALS.				
Michael Conway.....	Superintendent.....	Lachine Canal.....	1,400 00	Per year—House rent or allow- ance, \$300.
J. F. Béique.....	do	Beauharnois do	1,100 00	Per year—Rent \$150.
D. A. Macdonald.....	do	Cornwall do	1,100 00	Per year—Rent \$200.
A. G. MacDonnell.....	do	Williamsburg Canals.....	1,000 00	
R. Cardinal.....	Paymaster	St. Lawrence Canals.....	1,300 00	Per year.
E. V. Bodwell.....	Superintendent.....	Welland Canal.....	2,400 00	
R. D. Dunn.....	Paymaster.....	do do	1,400 00	

Names.	Occupation.	Locality.	Pay.	Remarks.
OTTAWA CANALS.			\$ cts.	
John D. Foreman	Lock Superintendent.....	St. Anne's Lock	800 00	per annum.
Wm. B. Forbes	Superintendent	Carillon & Grenville Canals ...	1,100 00	per ann. Value of house 125 00
CHAMBLY CANAL.				
Levi Larue.....	Lock Superintendent.....	St. Ours' Lock...	2 00	per day and \$150 house rent.
C. Préfontains.....	Superintendent.....	Chamblly Canal..	1,100 00	per annum, and \$150 house rent.
ST. PETER'S CANAL.—CAPE BRETON.				
W. M. Kavanagh.....	Lock Superintendent.....	.....	263 00	per annum.
RIDEAU NAVIGATION.				
Fred. A. Wise	Supdt. and Engineer.....	Office Staff.....	2,000 00	per annum.
Francis Abbott.....	Book-keeper	do	1,000 00	do
SLIDES AND BOOMS.				
T. D. Belcher	Superintending Engineer	River Trent and Newcastle Dist.	1,000 00	per annum.
G. P. Brophy.....	Superintending Engineer	River Ottawa Works	1,800 00	per annum.
D. Scott.....	Clerk and Accountant ...	do	900 00	do
D. Boulanger.....	Slide Master.....	River Saguenay Works	400 00	per annum.
INTERCOLONIAL AND PRINCE EDWARD ISLAND RAILWAYS.				
C. J. Brydges.....	General Superintendent..	Railways.....	8,000 00	per year.
INTERCOLONIAL RAILWAY.				
R. Luttrell	Superintendent	Traffic Department	Per annum.	
A. MacNab	Engineer	Engineer Department	3,000 00	
Thos. Foot	Accountant	Accountant Department	4,000 00	
H. A. Whitney	Mechanical Superintendent	Mechanical Department	2,000 00	
D. Pottinger.....	General Store Keeper ...	Stores Department	2,500 00	
			1,800 00	

Names.	Occupation.	Locality.	Pay.	Remarks.
PRINCE EDWARD ISLAND RAILWAY.			\$ cts.	
W. McKechnie.....	Superintendent.....	Charlottetown...	2,500 00	
Alex. Devino.....	Clerk.....	do	720 00	
Thomas Williams.....	Accountant.....	do	1,400 00	
Hon. Benj. Davies.....	Cashier & Paymaster.....	do	1,200 00	
E. O. Faulkner.....	Travelling Auditor.....	do	1,100 00	
Alex. Stronach	Mechanical Superintend.	do	1,500 00	Per annum.
G. C. Cunningham.....	Resident Engineer	do	2,000 00	Per annum.

APPENDIX No. 31.

TABLE showing the dates of the closing of Canals and Harbors in the Autumn of 1875, and the opening in the Spring of 1876.

Canals or Harbors.	Closing.	Opening.
Lachine Canal	30th November 1875.	1st May, 1876.
Beauharnois Canal.....	25th do do	1st do do
Cornwall Canal.....	6th December do	1st do do
Williamsburg Canals.....	2nd do do	1st do do
Welland Canal.....	15th do do	17th April do
Burlington Bay Canal.....	11th do do	28th do do
St. Anne's Lock and Dam	22nd November, do	1st May, do
Carillon Canal.....	20th do do	1st do do
Grenville Canal.....	20th do do	8th do do
Chute à Blondeau Canal.....	20th do do	1st do do
Rideau } Kingston Mills.....	18th do do	6th do do
} Ottawa.....	22nd do do	6th do do
St. Ours Lock.....	22nd do do	19th April, do
Chambly Canal.....	22nd do do	1st May, do
Erie Canal (New York).....	30th November, do	4th May, do
St. Peter's Canal (Cape Breton).....	14th December, do	3rd May, do
Quebec Harbor, River St. Lawrence.....	23rd November, do	10th do do
Montreal do do	29th do do	27th April, do
Toronto do Lake Ontario	10th December, do	11th do do
Kingston do do	10th January, 1876..	19th do do
Belleville do Bay of Quinté	28th November, 1875..	18th do do
Port Stanley do Lake Erie.....	16th December, 1875..	1st do do
Kingsville do do	10th do do	5th do do
Windsor do River Detroit.....	8th do do	12th do do
Sarnia do Lake Huron.....	18th December, do	20th March, do
*Goderich do do	15th do do	2nd May, do
Kincardine do do	20th November, do	4th do do
Owen Sound do Georgian Bay	5th December, do	3rd do do
Collingwood do do	4th do do	29th April, do
Midland Harbors, Georgian Bay	10th do do	28th do do
Parry Sound Harbor, do	30th November, do	5th May, do
River St. Mary, do do	25th November, do	7th May, do
Thunder Bay do Lake Superior.....	17th do do	1st do do
Prince Arthur's Landing, Lake Superior.....	29th do do	11th do do
Winnipeg Harbor, Red River.....	2nd do do	22nd April, do

* This Harbor opened out again in a few days and remained open until January, — the schooner McGraw arriving on the 5th of January from Windsor.

REPORT

OF THE

CHIEF ENGINEER OF PUBLIC WORKS

ON THE PROGRESS OF

CANAL ENLARGEMENT

BETWEEN

LAKE ERIE AND MONTREAL.



OTTAWA, 1877.

No. 37.763.

DEPARTMENT OF PUBLIC WORKS,
CANADA.

OTTAWA, Nov., 20th, 1876.

SIR,—I am directed by the Minister of Public Works to inform you that he is desirous of laying before Parliament at its next session, full information relative to the works connected with the enlargement of the canals between Lake Erie and the city of Montreal, as well as of those between the cities of Ottawa and Montreal.

You will therefore be pleased to take the necessary steps to prepare a report on these matters as early as other duties will permit, describing the progress made under the different contracts, together with a statement of what remains to be done in connection with them, and reporting the nature and extent of the works still to be let, also such information as will enable the various matters to be clearly and readily understood.

I have the honor to be, Sir,

Your obedient servant,

(Signed)

F. BRAUN,

Secretary.

JOHN PAGE, Esq.,

Chief Engineer, P. W.,

Ottawa.

REPORT
OF THE
CHIEF ENGINEER OF PUBLIC WORKS
ON THE PROGRESS OF
CANAL ENLARGEMENT
BETWEEN
LAKE ERIE AND MONTREAL.

OTTAWA, January 30th, 1877.

THE SECRETARY OF PUBLIC WORKS :

SIR,—In compliance with instructions conveyed in your letter, No. 37,763 (copy prefixed) I have the honor to submit the following report on matters connected with the enlargement of the canals, and other works in progress, on the direct line of water communication, between the Western Lakes and the head of ocean navigation at Montreal, &c.

It may, however, first be stated, that all recent general reports on these subjects have had reference to the construction of canals, 100 feet wide at bottom, with locks 270 feet long between the gates, 45 feet in width, and a depth suited to the passage of vessels drawing 12 feet of water. These being the dimensions recommended by a Special Commission, appointed (in November, 1870) to enquire into matters connected with the inland navigation of the Dominion—a conclusion that was subsequently assented to by the Government, and communicated to me officially by your letter of the 22nd July, 1871. These instructions continued to be acted upon until April, 1875, when your letters Nos. 29,863 and 29,864 were received.

The first of these was in relation to the Welland Canal, and directed that all permanent structures on the Summit and Thorold levels, as well as those at Port Dalhousie, should "be adapted to a depth of water corresponding to 14 feet on the "mitre sills of the Locks," and the second directed that "the permanent structures on "the Lachine Canal should also be placed at a like depth."

All the works that were put under contract prior to 1875, were, of course, arranged for a draught of 12 feet of water on the lock sills; they are, however, chiefly on that part of the new line of the Welland Canal, between Port Dalhousie and Thorold, where the walls of the locks, banks of the Canal, and water levels can be raised to give the contemplated depth when required. -

The position, nature and extent of the existing works, as well as those proposed for the enlargement, were described in former reports; but provision for the increased draught of water has, in some instances, rendered necessary such changes as will doubtless be more readily understood by drawing attention, not only to the different places, but to the main features of the line and special matters bearing on the respective cases. .

It is therefore considered proper to follow this course, although it may result in occasional repetitions of what has been already written on the subject.

The Welland Canal being the first of the series, in descending order, as well as in extent, and certainly not second in importance, it will be brought first under notice, in order following:—

It may be observed that it forms the only navigable connection between the waters of Lakes Erie and Ontario, and that, too, between the nearest available suitable outlets.

The present line is about 27½ miles in length, or about 25 per cent. more than a straight line between its two terminal points.

The difference between the water-surface of the two lakes in moderately calm weather, as near as can be determined, is 326¼ feet; but Lake Erie is subject to more sudden fluctuations, and generally to a greater range of variation than Lake Ontario, matters which have more or less influence on the harbors at these places.

The enlarged canal will be about 26½ miles in length, from harbor to harbor. From Port Dalhousie to the upper end of Thorold, an entirely new line is in course of construction, along which the distance is 8½ miles, and from the latter place to Allanburgh, a distance of 3 miles; it is desirable that a new line should also be formed, for the reasons subsequently given.

From Allanburgh upwards, the enlargement for the most part is made, or in course of being made, by widening and deepening the old channel.

Before entering into particulars relative to the progress of the works, it may further be stated that on the 11th of October, 1872, public notice was given to contractors, that tenders would be received for the enlargement of certain parts of the line between Port Dalhousie and Port Colborne, and inviting them to examine the locality before winter set in.

On the 22nd November, 1872, part of the works were advertized, and tenders for them received on the 25th day of January, 1873; but they were not awarded until April of that year.

This delay arose from representations made by parties more interested in other routes than the one recommended in my report of April, 1872, and which, it may be observed, had been directed to be carried out.

These representations led to the appointment of three prominent professional gentlemen, who were authorized to examine the various lines, plans, and other matters, so as to enable them to give an opinion on the subject.

This they did; and on February 1873, advised certain alterations to be made, which on being carefully looked into were not approved, but on the contrary, an Order of the Honorable the Privy Council was passed, authorizing the design submitted in April 1875, to be carried into effect.

At this date, April 1873, Sections Nos. 8, 9, 10, 11, 15, 16, 21, 22, 29, 30, 31 and 32, were placed under contract.

On the 18th October 1873, tenders were received for a number of sections situated at different places on the line, but as many of them were informal, and otherwise objectionable, it was considered best to invite new tenders for the whole.

The works were therefore advertised again on the 29th December 1873, when notice was given "that tenders will not be considered unless made strictly in accordance with the printed form, and—in the case of firms—except there are attached the actual signature, and the nature of the occupation and place of residence of each member of the same."

"For the due fulfilment of the contract, satisfactory security will be required on real estate, or by deposit of money, public or municipal securities, or Bank stock, to the amount of 5 per cent on the bulk sum of the contract, &c."

Under these conditions tenders were received on the 21st January 1874, and shortly afterwards the contract for the works were awarded for sections Nos. 2, 3, 5, 6, 7, 13 and 14, all of which are situated between Port Dalhousie and Thorold.

It may here be stated that section No. 12 was not let at that time, as it was thought best in the first instance to inform the Great Western Railway Company that the new portion of the canal would cross that part of their line situated on the incline

south east of Merritton. To the proposition of carrying the track over the canal by means of a swing-bridge, strong objections were urged on behalf of the company, which led to considerable delay before anything like a satisfactory understanding could be arrived at. This was, however, at least effected, and the arrangements made will be subsequently referred to, in connection with the works on the section.

On the 24th June 1875, tenders were received for sections Nos. 1, 4, 12, 23, 24, 25, 26, and 36, and the works were shortly afterwards awarded.

In the contracts generally, April, 1877, is fixed as the time for completion, but Section No. 36, Port Colborne Harbor, is not to be finished until June 1878.

The sections are numbered from Port Dalhousie upwards, and are for the most part from a mile to one half of a mile in length.

Appended will be found a full and descriptive report (prepared by Mr. Thomas Monro, engineer in charge of the northern Division of the works executed, and generally what remains to be done, under existing contracts, on the new line between Port Dalhousie, and Marlatt's pond, situated a short distance above the village of Thorold. This, together with the following remarks, will, it is believed, enable a tolerably fair idea to be formed of the nature, extent and present condition of the different parts of this division of the works.

SECTION No. 1,—embraces the enlargement and deepening of Port Dalhousie Harbor, the extension of the east pier 300 feet farther out into Lake Ontario, building docking on both sides of the new part of the basin, enlarging the present waste-weir so as to regulate the water in both the old and new canals, the construction of a lift-lock, with its upper wings extended to form abutments for a swing-bridge, to carry the traffic to and from Port Dalhousie.

The area of the present harbor is about eight acres, but when the works now under contract are completed, it will have an area of sixteen acres, and at the lowest stage of the water, there will be a depth of at least 15 feet, at the tail of the new lock, and 16 feet at the inner end of the entrance channel.

The lower or outlet lock of the present canal is on the west side of the basin, about 900 feet from the landward end of the entrance piers. It has generally a lift of from 12 to 13 feet, and a depth on the lower sill of 12 feet at low water.

The new lock is to be placed on a salient point on the east side of the harbor, and in such a position that the lower wings will be about 1,600 feet south of the inner ends of the piers, and in such a range that when the centre lines through both the old and new structures are produced, they will be 400 feet apart, opposite the lower gates of the old lock, and 550 feet apart, opposite the upper gates of the new lock.

The space between the locks, is chiefly a made bank, from 150 to 250 feet in width, part of which is used for a public road, and towards the eastern end of it, two flouring mills have been built. A small saw mill that stood there, had to be acquired, in order to

obtain space to form a suitable outlet from the Waste Weir—the discharge from which, as well as from the tail races of the mills, is intended to pass through a series of openings, left in the west docking for that purpose.

The bank referred to forms a dam, that retains the water in the valley of the Twelve Mile Creek, and renders it navigable to the second lock of the present canal, near St. Catherines, a distance of fully three miles. The lower part of this reach is a wide, land-locked basin of fully thirty acres area, with a depth generally of at least 16 feet—a sheet of water that can be used advantageously by vessels, for additional mooring space, when the harbor is crowded.

In the new part of the basin, there will be eight hundred lineal feet of available docking on the east side, and nearly one thousand feet on the west side.

The contractor for this section, has succeeded in making favorable arrangements, for the dredging operations required upon it. A large portion of the addition to the harbor, as well as part of the space between the entrance piers, has been already sunk to the full depth. The latter, for the distance to which the work has extended, has been made sixteen and a half feet at extreme low water, for a width of one hundred and seventy feet, or to within fifteen feet of the side piers, which are, throughout, two hundred feet apart.

There is, however, good reason to believe, that the depth, along the western side of the channel has diminished, and that it will continue to get less until some way is adopted, to prevent sand, during westerly storms, passing through the pier.

Occasionally the cribs forming the lower part of it, are several inches apart, and at some places the range of them is inside, and at others considerably outside of the line of the superstructure.

This condition of matters has prevented the sheeting, put on the west side of the pier under the direction of the Canal Superintendent, from answering the purpose contemplated, as the plank at some places cannot be got down low enough, at others there is great difficulty in fastening the bottom of them, and generally they cannot be properly secured.

It is of course desirable that the pier on that side, should in some way be made tight, as the surf along the beach, in a westerly gale, becomes charged with sand and silt; whilst the water frequently rises so as to form a head of several feet on the structure the result of which is to force a large quantity of sand through it, which is for the most part deposited in, and alongside of the channel,

Contractors were informed, when the works on this section were about to be let, that at several places, the material to be removed, consisted of indurated clay, and cemented gravel; but it is proper to remark, that a place on the east side of the new part of the harbor, and the bottom of the lock pit, have turned out to be even harder than anticipated, as at these places rock has been found.

This rock is a kind of hard, red sandstone, which, although irregular both as regards the surface level, and nature of the material, will form a good foundation for the bottom timbers of the Lock ; except for a short distance near the north-west corner of the space, where they will have to be placed on a moderately thick stratum of concrete well confined.

There is reason to believe that similar arrangements for securing the mitre-sill platforms will be required at this place, as in other cases where the foundation is rock ; that is to say, instead of ordinary sheet-piles, it will be necessary to use stop-water timbers, let into checks cut in the bottom for the depth required, as described in the general specification.

It is to be regretted, that the excavation for the foundation of the lock on this section was not sufficiently advanced to admit of laying the bottom timbers, and building at least one course of masonry, before the time arrived when all such operations, had, of necessity, to be stopped for the season.

All the timber for the bottom has been, however, provided, a large portion of the stone quarried and cut, and such other preparations made, as will enable the work to be proceeded with expeditiously as early as the weather will admit next spring.

SECTION No. 2,—is about 2,700 feet in length ; it extends from a point a little south of the main road, between St. Catharines and Port Dalhousie, and continues on a line, partly curved, through what is known as May's Ravine, to a distance of nearly three hundred and sixty feet, into the basin above the first lock.

The works on this section embrace the construction of Locks No.'s 2 and 3, the lower one of which is to be placed on a point, that projects out on the south-west side of the ravine, at a distance of about 1,700 feet above the head of the entrance lock. In this stretch across the basin there is generally a depth of 16 feet of water ; except for about 400 feet adjoining the first lock, where the depth varies from 9 to 15 feet.

When this section was placed under contract, the locks upon it, as in all other cases, were intended for the passing of vessels of a draught not exceeding 12 feet. With a view, however, of carrying out subsequent instructions, it was considered proper to make arrangements, to lower the bottom of the second lock so as to have fourteen feet of water on the lower sills. This was believed to be necessary, as the water level below it cannot be raised without flooding a large extent of low land, in the vicinity, and seriously interfering with existing works.

In order to form a suitable approach to this lock, it was intended to sink a narrow line of pier work, on both sides of the lower entrance, and to form the upper part of masonry ; but the bottom was found to give so unequal a bearing, that narrow crib work, when sunk, formed a very irregular line ; it therefore became necessary to place the

cribs transversely, instead of longitudinally. This arrangement, although it has not secured straight lines, gives such a general range as admits of placing on both sides, a timber superstructure, on moderately fair lines.

The lock pit has not been excavated to the depth necessary for the foundation; but the greater part of the material required for the structure, has been provided and a quantity of it delivered.

On the east side of the canal, near this place, a regulating weir has been constructed, the upper west wing of which connects with a dam, built across the ravine, on a line ranging with the east upper wing wall of the lock.

This dam is built of coursed masonry resting on a platform, of timber and plank, which is also laid upon a stratum of concrete, placed so as to bring to a level surface, a bed of hard clay and gravel, that was found after removing a considerable depth of soft material, from what appears to have been the bed of a former water-way. The structure is about thirty-eight feet high; but its thickness is much less, than would have been necessary for an unsupported dam of that height; for the reason that it is backed up with material from the excavation, for at least twenty feet in height on the canal side, and for nearly its full height on the lower side.

The reach between the second, and third locks is 1,300 feet long, and, from its occupying the greater part of the ravine, is about 217 feet wide at the surface water line; giving an area of fully $6\frac{1}{2}$ acres. It was therefore believed that in such a case, the expense of forming an independent supply-race, might reasonably be avoided.

As the third lock adjoins the main road, between St. Catharines and Port Dalhousie, the upper wings of it have been extended to form the abutments of a swing-bridge for the road traffic. And on the same line abutments for a fixed bridge over the race-way have also been built.

On excavating the pit for the foundation of this lock, it was found, at the depth required, the bottom consisted of quicksand, so much charged with water, that, at places, the material yielded in every direction when a person attempted to walk on it. This was looked upon as so serious a matter, that it led at first to the impression, the site of the lock would have to be changed. On, however, considering the matter, it was decided, that, by confining the quicksand, and forming an artificial crust over it of a suitable thickness, a foundation would be obtained which, with other precautionary measures, would be certain to answer all the purposes required.

In order to carry out this plan, a pit was sunk a short distance beyond the lower end of the lock, and connected with channels, cut on each side of the bottom, of a depth which drained the material that had to be taken out. On the water being kept well down at the lower end, the material for a stretch, the full width of the pit at the upper end, was removed to form a place for a stratum of concrete two feet in depth.

This mode of operation was continued until a crust of concrete, two feet in depth, was formed over the entire foundation, at the level suited to receive the floor timbers. The trenches cut for sheet piles at the mitre sill platforms, were also filled with concrete, and a trench cut fully five feet in depth across the lower end of the foundation, was, in like manner, filled with concrete.

The plan adopted, it may be observed, has been quite successful, as the walls have been carried up the full height,—except the coping,—and there is no perceptible crack in them, or any indication of unequal settlement.

SECTION No. 3,—is about 2,500 feet long, and embraces the construction of two lift locks, two regulating weirs, and two towing path bridges, the formation of the canal, and a supply race.

The regulating weirs have been built, as well as several of the abutments, and piers, for bridges over the transverse channels, which form a connection between the supply race, and the respective reaches. The masonry of the upper lock (No. 5), except the coping, is completed, and three-fourths of the masonry of the fourth lock has been laid. All the materials for other parts of the work on this section have been provided, and the excavation is well advanced.

SECTION No. 4,—embraces the cutting, and formation of the canal, for a distance of 3,250 lineal feet,—the excavation and grading required, to form a new line for the Welland Railway, for a distance of 5,944 feet,—also the construction of piers and abutments for two swing-bridges, one for the railway above mentioned, and another for a road leading to St. Catharines.

On this section, the canal line crosses that of the railway, at the place where the track is very little higher than the surface of the ground, and where the surface water of the canal will be about five feet over the ground line. It therefore became necessary, to change the line of the railway, and extend its grade, for a distance of about 1,500 feet, but at the same time to keep the inclination on the line less, than to the northward of where the change is made. This was done so that the track would be, at least, 6 feet over the canal surface, and have a stretch of 1,100 feet level, on the north side of the bridge, and 2,200 feet level on its south side.

This change will be made without interruption to the traffic of the road, and the arrangements throughout, are such that the approaches to the bridge, on both sides, are as advantageous to the road, and safe for the public, as they can possibly be under the circumstances.

The construction of the railway bridge, has not yet been commenced, but the piers, and abutments, for the common road bridge, are well advanced towards completion.

The earth excavation is nearly completed; which it may be stated, greatly exceeds the quantity originally estimated, as a bed of sand overlying the clay, was found to extend a considerable distance along the line.

The sand had not only to be removed, but other materials had to be excavated, and brought on to occupy its place.

SECTION No. 5,—is 3,200 feet in length : it includes the construction of Locks Nos. 6 and 7 (placed 1,500 feet apart), also two regulating weirs, and two towing path bridges, over the openings into the different reaches, from the race-way formed on the east side of canal.

On examining the bottom of both the locks on this section, the material was found to be of a soft yielding nature, when kept for a short time moist ; but when exposed to the action of the sun, the surface soon hardened, and seemed to shrink, and leave wide, deep cracks in every direction through it, to such an extent, that it was feared there would be considerable risk, in treating it as an ordinary clay foundation.

It was therefore decided, that a foot in depth of the material, over the entire area of the bottom, should be removed, and a like depth of properly made concrete be substituted for it, and laid to form a uniform bearing surface, for the floor and foundation timbers.

The trenches cut for the reception of sheet piles, at the mitre sill platforms, as well as those at the lower ends of the locks, were filled with concrete, also the spaces between the timbers in the chamber, and at other places, where it could be advantageously used. The item of concrete alone, it may be observed, involved an expenditure of upwards of \$20,000 for the foundations of the two locks.

The masonry of the upper lock on this section, is now all but completed, and fully one-third of that of Lock No. 6 is laid.

The upper wings of the lower lock, from a foot below the bottom of the upper reach, are to be extended, to form the abutments of a swing bridge, for public travel along Geneva Street of the city of St. Catharines ; and the abutments and pier, for a fixed bridge, on the same line over the raceway, are to be built.

The masonry of the two regulating weirs, and of one of the towing path bridges is finished.

It may here be stated, that the operations on this section, furnish a rare instance of sub-contractors, not only pushing on their work expeditiously, but manifesting, throughout, a disposition to execute it in the best and most satisfactory manner.

SECTION No. 6,—is about 7,000 feet long ; it embraces the formation of the canal for that distance, the construction of piers and abutments for a swing bridge, to carry the traffic over the canal, that passes by the way of Niagara Street, St. Catharines, and the building of abutments, and a pier for a towing-path bridge.

The excavation and embankment on the section is well advanced, but a like remark as was made relative to section four, is applicable in this case, namely :—a bed of sand was found to extend a considerable distance along the line, which had to be

removed, and other materials excavated, and brought a considerable distance to occupy its place, as well as other precautionary measures adopted, to render the banks impervious to water.

The masonry connected with the swing bridge is in a fair state of forwardness ; but the masonry of the towing-path bridge, has not been commenced.

SECTION No. 7,—extends from a point a little south of the road between St. Catharines, and Queenston, for a distance of 3,075 feet downward. On it there are two lift-locks, two regulating weirs, two towing-path bridges, and the abutments, and piers to carry the traffic of the road above mentioned.

On excavating the foundation for Lock No. 9, or the upper one on this section, it was found that the bottom was of a nature, similar to that previously described for Locks Nos. 6, and 7, except that when moist it seemed to get even softer, and when dry the cracks through it were larger and deeper.

It was therefore decided that fifteen inches in depth of the material, below the regular line, should be removed for the whole area of the bottom, and a stratum of well made concrete, laid on in layers, substituted for it, so as to form a bearing surface for the foundation timbers.

The sheet-pile trenches at the mitre-sill platforms, and at the lower end of the lock are filled with concrete, also the spaces between the floor timbers.

In the lower lock on this section, a bearing surface, formed of one foot in depth of concrete, projecting inside the line of the walls, is laid on both sides of the bottom, on which the foundation timbers rest.

The piers and abutments for the swing bridge, on the main road from St. Catharines, eastward, are completed. In this connection it is considered proper to state, that the contractors have executed this portion of the work themselves, and that they have done it well.

The walls of the upper lock are finished; except, that part of the coping has to be put on: the lower lock is carried up two courses in height, one of the regulating weirs is completed, and the abutments and piers for the towing-path bridges are either finished, or well advanced.

It is to be regretted, that in carrying on the lock masonry on this Section, some of the leading objections to allowing large, important, works to be sub-let, have been fully manifested; which has led to much dissatisfaction, and caused a vast deal of unnecessary trouble, to get the work even moderately well executed.

SECTIONS Nos. 8 AND 9,—are included in one contract; which embraces the formation of the canal, for a distance of 6,338 lineal feet, the construction of three lift locks, three regulating weirs, four bridges over the openings, between the side basins, and reaches,—the construction of abutments, and piers for a public road bridge, and a culvert to pass the waters of the Ten Mile Creek.

The walls of all the three Locks Nos. 10, 11, and 12, are carried up to the full height to receive the coping, a few pieces of which have been laid, and a considerable portion has been delivered and cut. The masonry of all the regulating weirs, and two of the towing path bridges is finished, and the others are in a state of forwardness. The culvert, to carry the waters of the Ten Mile Creek under the canal, consisting of two arched openings, each 8 feet wide, has been in use for the past two years.

The abutments, and piers, for the road bridge have not yet been commenced, but part of the material has been prepared and delivered.

The greater part of the excavation has been done; and the works generally, are in an advanced state.

On these Sections, the lock masonry has been sub-let; nevertheless it has been conducted in a manner that, with close attention, a very fair class of work has been obtained.

At a short distance, above the head of the eleventh lock, is the termination of a continuous straight line, along the channel, from a point near the fourth lock,—a stretch of about $4\frac{1}{2}$ miles.

From the point above mentioned, the line curves slightly to the west, then it again follows a straight course, for about five-sixths of a mile, on this stretch five of the locks are situated.

SECTION No. 10,—is 2,107 feet long, and embraces the construction of Locks Nos. 13, and 14,—building two regulating weirs,—the piers and abutments, for the towing path bridges,—forming basins, on the west side of the canal, making up, and grading the approaches to a bridge seat, formed by extending the lower wings of the thirteenth Lock.

After the foundation of the upper lock on this section, had been excavated to the contemplated depth, the material was found to be of a similar nature, to that described for Locks Nos. 6, 7, and 9: it was therefore decided to remove it, for a depth of fifteen inches, over the entire area of the bottom, and substitute a like depth of concrete, on which the foundation timbers were subsequently placed.

Concrete was also used in the sheet pile trenches, at the mitre-sill platforms, and at the lower end of the lock; as well as between the timbers in the chamber, and at other places where they were laid a few inches apart.

In Lock No. 13, the space between the foundation timbers, and the sheet pile trenches, were filled with concrete, as the works progressed.

The walls of the thirteenth lock, and the extension of the lower wings for a bridge seat, are carried up to the full height to receive the coping—the regulating weirs, and principal parts of the towing path bridges are completed—about two-thirds of the

masonry of the fourteenth lock is laid, and a considerable quantity of materials has been prepared, and delivered for the completion of the works.

, SECTION No. 11,—extends for a distance of 2,250 feet, and includes the construction of two lift-locks, a regulating weir, two or more towing-path bridges, and a culvert under the canal for a public road.

The latter, it may be stated, is completed, but has not yet been brought into use. It is fourteen feet wide in the clear, and fourteen feet high to the underside of the arch, which is 291 feet long. The total length from the outer end of the wings on one side, to a like point on the other side being 331 feet.

The culvert is situated on that part of the Thorold and St. David's Road, where inclinations to and from it are unusually favorable, and where efficient drainage has been obtained, at very little expense.

It is quite true that the culvert, has cost more than the first outlay, required to build a swing-bridge ; but it should be borne in mind, that its future maintenance, will be only a small percentage, of what would have been necessary to keep up a bridge ; besides there can now be no delay, either to the navigation, or the traffic of the road ; whilst the public safety has been in every way fully secured.

The lower lock on this section, or the fifteenth from Lake Ontario, has been carried up to the height, required for the coping, part of which has been put on, and nearly one-third of the masonry of the sixteenth lock has been laid.

The regulating weir and two towing-path bridges are completed ; and there is a quantity of materials prepared and delivered for the works.

The upper regulating weir, connected with this section, is really within the boundaries of section twelve, and cannot be built until the line of the Great Western Railway is changed ; it is therefore questionable whether it can strictly be considered as a part of the contract for Section No. 11.

It may be stated, that the whole of the works on this section have been sub-let, and, that under the circumstances, there is reason to believe, it is better that this should have been the case ; although there has been a good deal of difficulty in getting them properly executed.

SECTION No. 12,—extends for about 2,115 feet, on the line of the canal, and embraces the formation of the channel, and basins along its North-western side,—the construction of two lift-locks, two regulating weirs, and two towing-path bridges. It also includes all the works connected with the formation of about 7,500 feet of new line, for the diversion of the Great Western Railway, including, for that purpose, the construction of a culvert, or tunnel under the canal.

On this section, the line of the canal crosses the track of the Great Western Railway, at a place where there is a grade of about 38 feet to the mile, for a long distance on both sides of the intersection.

It was therefore urged by the representatives of the company that, under these circumstances, they could not consistently consent to have the track carried over the canal by means of a swing or draw bridge, not only from the delay to which their trains would be subject, but from the danger that must inevitably result to the travelling public.

They, at the same time, submitted a sketch plan, showing that a tunnel might be constructed under the canal, for the passage of the railway traffic, and stated they would be fully satisfied if it was carried out. After considerable discussion on the subject, it was arranged that the line of the railway, should be changed as nearly as possible to that indicated on the plan, that this fact, together with a number of conditions discussed, and agreed to, should be embodied in a written memorandum, and signed by the proper representative of the Great Western Railway Company, and by the Minister of Public Works on the part of the Government.

There was, however, considerable delay in getting this document executed, which, it is believed, could not well be obviated, in the state of the Company's affairs at that time. It is dated the 22nd day of April, 1875, and provides, amongst other matters, that the "Department of Public Works shall construct a tunnel under the Canal at a point above Lock No. 18, and do all the work required for forming a connecting link of railway, through and between it and the main line; this connection to be in the aggregate about 7,500 feet in length."

In no case is the curvature to be "less than 1,443 feet radius, and the gradient nowhere result in more than 42 feet per mile, either in the connecting link, or in the adjoining existing line; the cutting to be at least 24 feet wide, and embankments 18 feet wide on top, and the workmanship throughout to be executed in the best manner."

"The Great Western Railway Company agree to pay for the necessary right of way for the new line, other than where it passes through Government property. In the latter case, the Company to receive a title from the Department of Public Works to such a quantity of Dominion land as may be reasonably required for the cuttings, embankment, drainage, &c., of the new line."

"The Railway Company to convey to the Department of Public Works, such of their lands connected with the present track, as lie between the east and west boundaries of the property, recently purchased by Government for canal enlargement."

"In consideration of the Government constructing the line of railway, tunnel, &c., instead of building a draw-bridge, as originally contemplated, the Company agree to waive all claims for prospective losses, arising from increased length of line, curvature grade, or any cause whatever, connected with the operation, or maintenance of the line, when constructed in the position above indicated."

The tunnel is 665 feet long, and including the wings, 713 feet; it is 16 feet wide in the clear, and will be 18 feet high in the centre, over the level of the rails.

Through the tunnel, the track will be nearly level; to the westward of it the grade will be about 21 feet to the mile, and to the eastward it will at no place exceed the inclination agreed upon, 42 feet to the mile.

To obtain these grades, the excavation for part of the distance in the centre of the cutting, varies from 30 to 35 feet in depth, gradually diminishing at both ends of the line.

The present contract embraces all the work to be done on the new line, to bring it to sub-grade, between the points before mentioned.

To guard against injury to the Canal, as well as to carry out, in every respect, the agreement made with the Railway Company, the works throughout are to be of the best and most substantial class.

There is no doubt whatever, that the construction of a swing bridge, would have been the least expensive way of, carrying the railway over the canal; but, keeping in view the heavy grade there would have been on both sides of it, and the great extent of passenger, and other traffic which passes over the line, it will be evident that a course has been adopted, by which the probability of accident is greatly diminished, and delays to the communication, both water and rail, fully guarded against.

The masonry forming the sides of the tunnel has been, for the full length of the structure, carried up to an uniform height, over those parts of the foundation, at both ends, and over the middle five hundred feet in length, the height is about eight and a half feet.

The railway culvert, for passing the waters of the Ten Mile Creek, has been lengthened, and a considerable extent of excavation for the new line of Railway done.

The foundation and floor of Lock No. 18, have been laid, and the walls built up to the height of eight and a half feet—a large quantity of stone has been delivered and prepared; but neither the foundation of Lock No. 17, nor the works connected with the weir have been commenced.

The contractors for this Section must therefore be urged to greater expedition for the future.

SECTION No. 13,—is about 2000 feet in length, it embraces the construction of two lift-locks, two regulating weirs, two towing-path bridges, and the formation of basins on the north side of the canal.

In the upper lock on this section, fully one half the quantity of masonry has been laid—in the lower lock the foundation is completed, and a course of masonry laid for both side walls—the foundation of the regulating weir laid and secured, and the works, as a whole, are well advanced.

The works on this section are sub-let, and the parties in whose hands they now are require no great pressure to push on the operations; although they have to be persistently reminded about the class of work covered by the contract.

SECTION No. 14,—is 1775 feet long: it includes the construction of Locks Nos. 21, and 22, two regulating weirs, and three towing-path bridges, besides the formation of the channel, and basins on the north side of the line.

On excavating the foundation of the upper Lock (No. 22), part of the bottom was found to be of rock and part clay. The rock being a soft shale ranging obliquely across the pit, the upper part of it, for a depth of six inches, was taken off, and the clay, for a depth of 15 inches was also removed. The height to form an uniform bearing surface for the foundation timbers, was afterwards in both cases, made up with concrete.

The trenches for the sheet piles, the spaces between the floor timbers, as well as the space between the side walls and rock, were also made up with concrete.

The masonry of the twenty first Lock, from Lake Ontario upward, was finished in the latter end of May 1876.

It was the lock first completed on the new line of canal.

All the other structures on the section have since that time been finished, except one of the regulating weirs, the stone for which has been prepared.

SECTION No. 15,—is about 2050 feet in length. It is situated to the east of the town of Thorold, in a ravine which appears to have been to a great extent formed by the head waters of the Ten Mile Creek.

It includes the formation of the Canal for the distance above stated—cutting a supply race on the east of the channel—forming a new water course for the creek, and all the excavation necessary to admit of moving the track of the Welland Railway, about one hundred and twenty feet to the westward.

It also embraces the construction of two lift locks, two regulating weirs, piers, and abutments for a road bridge, retaining walls, &c.

The principal part of the ravine above-mentioned is owned by the Welland Railway Company, and the central portion of it, at the time of commencing the works, was occupied by their track.

This line having been considered for many reasons the best for the Canal, provision was made in the contract to cut a sufficient width off the west bank, to admit of moving the railway track to a position, where it would be outside the range of the canal works, and at the same time be beneficial, rather than otherwise, to the line itself.

This work was necessarily the first undertaken, and from its extent and nature occupied considerable time; but the change was ultimately accomplished, even to the

satisfaction of the railway authorities, with whom, it may be stated, arrangements were made to find both the ballast and the iron, and do all the work necessary over sub-grade.

Before changing the railway line, a channel of sufficient capacity had to be formed to carry off the waters of the Ten Mile Creek, which rise to a considerable height, and come down rapidly during snow-floods, and rain storms of long continuance.

This channel is between the railway and canal works; both sides of it are of a good class of dry rubble masonry, and where the bottom does not consist of rock in position, it is made of closely-laid pitched-stone, having throughout an inclination of 83 feet to the mile, or about the same grade as that of the railway.

The space through the ravine, although wide, is not of such dimensions as admits of forming, what may be called a basin between the two upper locks; still, the canal itself is over the general width, and there is a race-way outside 58 feet in width, which connects with it at several places.

It may be observed that, although the supply in rear of Locks Nos. 23, and 24, is on the east side of the Canal, and the weir at No. 22 is on the north-west side, there will not be an oblique current in that reach due to the full supply, as part of it will pass on the south-east side of the latter lock, through a conduit made for that purpose.

In the pit excavated for Lock No. 23, the dip and irregularities were such that, the southern end was 22 inches lower, than at a point 260 feet farther north, where the rock was at the right height; consequently, an average of 11 inches in depth of concrete, for the entire width of the pit, and for the distance above-mentioned, was necessary, to form a proper bearing for the foundation timbers. Concrete was also used between the floor timbers, and in the transverse trenches, and at places adjoining the rock in rear of the walls.

The masonry of this lock is considerably more than half laid.

When the pit was excavated for the foundation of Lock No. 24, the rock was found to be broken, and so very irregular, that its surface varied from 3, to 36 inches, below the level suited for the floor timbers. This space for the full width of the pit had to be made up with concrete, of an average depth of fully 18 inches. Concrete was also used between the timbers, and for the trenches across the foundation.

The walls of this lock, together with the extension of the upper wings, to form abutments for a road bridge, are carried up to the full height to receive the coping.

In this connection, it may be stated, that in order to avoid constructing a separate high bridge, for the macadamized road between Thorold and Clifton, it is proposed to change the line of the road slightly, on the east side of the canal, so as to cross immediately above Lock No. 24, by means of a swing-bridge, and on the same line over the raceway, on the east side, and Welland Railway on the west side, by means of high level fixed bridges.

This line will enter Thorold nearer to the business part of the village, and from the east end of the range of bridges, a road will be formed along the east side of the ravine for the convenience of parties residing in that vicinity, as well as affording access to the Thorold cemetery.

The regulating weirs on this section are not yet commenced, and there is still a considerable extent of the retaining walls to be built. It may therefore be said that, although a large extent of work has been done on this section, it is still far from completion.

SECTION No. 16,—is 3500 feet long. The work upon it consists chiefly of such, clay and rock excavation, as may be necessary to form a channel way of the dimensions required by the position of the line—the construction of a syphon culvert to pass the waters of the “Ten Mile Creek”—building slope and retaining walls, &c.

It passes through the same ridge as the present line of canal above the village of Thorold; but the rock cutting upon it is of greater extent longitudinally and of course transversely, besides the surface inclination being toward the east, the cutting is deeper than upon what is called the “Little Deep Cut.”

The culvert under the canal has been completed, which together with the channel way from it, as well as that part formed on Section 15, have all been in use for the past two years.

About three-fourths of the dry wall has been built. The clay excavation is well advanced, but there still remains fully 40,000 cubic yards of rock to be removed to complete the work on this section.

From the upper end of Section No. 16 to the north end of the “Deep Cut,” south of Allanburg, the work for several important reasons, has not yet been placed under contract.

On turning to a general report made in 1872, on the subject of the enlargement of this canal, it will be found stated that “in order to obviate the necessity of lowering the bottom of the reach below Allanburg, it is proposed to raise the water level two feet.”

This suggestion was made from a moderately clear recollection of the difficulties encountered, in deepening this reach in the winter of 1843-44, and the succeeding winter; but especially with a view of avoiding the necessity of removing the three culverts which are on it, and constructing others at a lower level.

On the new line, the bottom of the reach above Lock No. 24, has been fixed, under the impression that the present water level would be raised as above recommended.

The conclusion having been since arrived at, that all permanent structures on the summit level, are to be placed to admit of the canal being made of a depth suited to the

passage of vessels drawing fourteen feet of water, it becomes quite evident, that the reach between Thorold and Allanburg is not in the same relative position, as the levels below it ; inasmuch as the water-level cannot be raised any higher, without doing a great damage to property at a considerable distance inland, while to lower the bottom, will be attended with all the difficulties, it has hitherto been the principal object to avoid.

The old line having been closely examined, with a view to enlargement, its objectionable features became even more evident, than from the general survey previously made.

Its crookedness, it may be observed, is well known to be at times, a great drawback to the class of vessels at present in use ; hence the improvement of its alignment for large vessels, is looked upon as no less essential, than that of increasing the capacity of the channel. To do this even to a very limited extent, several high embankments would have to be removed, a kind of work that could only be done during the season of navigation, by first making an independent outer bank, a mode of proceeding that would of course greatly increase the quantity of work.

On the other hand, to move the material of the present banks, so as to make up others during winter, would, in such positions, and for such purposes, be an undertaking it is to be feared, attended with very unsatisfactory results ; besides there is reason to believe, that to form proper connections between the old and the new parts of the banks, whether for the purpose of heightening, or strengthening them, would be found in winter, to be both difficult, and very uncertain.

Removing the culverts, constructing others in the same, or in similar positions would also, under the most favorable circumstances, be attended with a vast deal of difficulty between the months of December, and April of any one year.

These different matters, especially the tortuousness of the line, and the certainty of being unable to materially improve it, rendered a thorough examination of the adjoining country desirable, in order to ascertain whether a new line, less objectionable than the old one could be obtained, and, if so, the probable difference in the expense of construction.

It was soon found, that by continuing the summit level down to near Thorold instead of descending by a lock at Allanburg, a very considerable outlay for deepening would be avoided, and at the same time a very fair line, although not a straight one, could be obtained. This new, or independent line commences at a place a short distance above the Guard Lock at Allanburg, and continues in a straight line west of the village, along the old or original canal, to what is called the Holland Road. For a distance of half a mile, it then curves slightly to the north-west, until near the road between Allanburg and Thorold, when it continues on a line nearly parallel to that road, for about three-fourths of a mile. Thence it curves slightly towards the north for about four-sevenths of a mile, to near a school house situated on the south side of the road, leading to what is called Marlatt's Bridge.

It then continues in a north-easterly direction, until it intersects the macadamized road from Thorold to Allanburg, at the south-east end of the bridge across Marlatt's pond.

Thence it bears more to the east, and at a distance of little more than a quarter of a mile, connects with the upper end of Section No. 16.

In carrying out this plan it is proposed, to place Lock No. 25, on the south-west side of the macadamized road, at a place near the bridge over Marlatt's pond, and at a point about seven hundred feet south of the Lock, to construct a set of Guard Gates to supply the place, both of those that would be required on the enlarged channel at Allanburg, and on the reach above Lock No. 24, of the new line.

To the north of the Lock, a culvert will be constructed under the canal, of sufficient capacity to keep the pond on both sides of it, at the same uniform height.

The lower wings of the Lock may be extended, to form the abutments for a swing bridge, to carry the traffic of the macadamized road.

Near the lower end of Section No. 17, the line of the Welland Railway crosses Marlatt's pond, on a bridge constructed for that purpose.

This pond is canal property, under the direct control of the Department of Public Works, but in this Office, no record can be found, of permission having been granted, for the Welland Railway to pass through, or occupy any portion of it.

The new line of the canal, crosses that of the Railway at a point in this pond; it therefore appears that if the Railway Company are allowed to continue to enjoy the privilege of a crossing at this place, they must provide, at their own cost, and expense, such a bridge as will enable them, to cross the new line of canal, in a manner subject to the approval of this Department.

There will of course have to be a swing bridge over the new line, leading to Marlatt's crossing of the old canal: this, it may here be stated, is the only additional structure, that will be necessitated by the new line, which arises from the fact that the bridge over the old canal will still have to be maintained. Opposite this however, may very fairly be placed a set of Guard Gates dispensed with on the more direct line.

In this connection, it is believed proper to state that a separate swing bridge, for the Holland Road adjoining Allanburg, would, in either case, be the same.

The present regulating weir at Allanburg will have to be taken down, and another one built above, and to the west of the Guard Lock, for the purpose of passing a supply of water for the old canal.

On the east side of the guard gates, and lift Lock, or west side of the proposed new channel, a retaining wall will have to be built, to separate the new line, from the old

one; as the space is insufficient to admit of forming a suitable clay bank, and on the east or Allanburg side, the bank will be made, for some distance, with a steep slope, and faced with pitched stone.

Some of the advantages to be derived, from the formation of the new line, may be briefly stated as follows:

1st. It would obviate the necessity of interfering with the existing water level, between Allanburg and Thorold, and thereby avoid all claims for drowned land, and questions of that nature.

2nd. It would be a little shorter, and the alignment decidedly better, than that of the old canal could possibly be made.

3rd. The culverts could be built, and embankments formed in summer, when less risk would be incurred and a better class of work executed.

4th. The summit level would be extended about two and a half miles, and would form a continuous line, without a break, from Lake Erie to near Thorold.

5th. It could be constructed at less expense, and, as a whole, be made more secure, and better adapted to the large class of vessels, likely to be used on the line.

The construction of the new line, from the North end of the "Deep Cut," to the South end of Section No. 16, including the right of way, is approximately estimated to cost \$850,000.

To enlarge, and deepen the present line, build the necessary structures, purchase the right of way required, is, on a similar basis as the above, approximately estimated to cost \$950,000.

In short, there is reason to believe, that in regard to economy of construction, certainty of securing the best class of workmanship, having the shortest route, and least objectionable curvature, the new line promises advantages which could not, at any cost, be obtained by an enlargement of the old canal.

It is true that its construction involves, the maintenance of the present line also; still there is very little doubt, that the interest on the difference of the cost, will more than meet the outlay required for that purpose.

It is therefore in every respect desirable, that the new line, from Marlatt's pond to the north end of the "Deep Cut," should be adopted, and the works upon it placed under contract, as soon as the necessary arrangements can be made.

Between Port Dalhousie; and Allanburg, there are to be twelve bridges for common road crossings ; four of which are to be over the upper wings of locks—two over the lower wings, and six separate, or detached structures : besides there are two railway bridges.

At all the detached bridges, the water-way is to be in four divisions, which, in the aggregate, will have a sectional area equal to that of the canal.

The two centre openings are each to be forty-six feet wide, and are to form the navigable channels.

The piers, and abutments, are to be of masonry, laid in hydraulic cement mortar, on a foundation of timber, and plank placed one foot below canal bottom. The centre, and rest piers, are invariably to be parallel to the centre line of the canal ; the former to be from 16, to 18 feet square, and the latter from 15, to 17 feet in width, and 9 feet in thickness, and, in all cases, an arched culvert varying from 6, to 8 feet in width, and 8 feet in height will be made through the centre of them, on a line ranging with that of the canal. The piers to form the seat of the swing portion of the bridge, and the abutments are also to be of masonry.

Stone parapet piers are to be carried up, at all the four corners of the bridge, one of which at each end of the structure, is to be hollowed out to receive machinery, and the wings of the abutments are to be carried up the same height as the parapet piers.

Between the centre and rest piers, as well as above and below them, crib-work is to be constructed to form bearings for fenders on each side, and for protection of the respective parts of the work. Through the middle of the cribs, longitudinally, a clear waterway is to be formed, and transverse openings are also to be made adjoining the centre and rest piers, and elsewhere, of such shape and dimensions as may, together with the centre openings, give an area equal to at least that of archways formed in the masonry.

The seat piers are to be protected by means of piles, or framed bents, sunk into the bottom, on which strong cap-pieces are to be secured, and connected with suitable anchor-timbers let into the bank.

For the protection of the structure and guide piers, clusters of piles are to be driven,—within the range of the centre and rest pier,—at suitable distances above and below them.

THE SUPERSTRUCTURE of all the road bridges are to be on the "Howe Truss" principle. The movable portion of detached structures, will be made of a length to span the two navigable channels, and those at locks are to be of a length suited to circumstances.

In all cases the lower chords, floor beams, and stringers, are to be of wrought iron, formed in pieces of uniform and convenient length, and so arranged that they can be readily replaced in case of accident.

The top chords, diagonal braces, and such stringers as required to fasten the flooring to, are to be of timber.

By this arrangement, those parts of the bridges most liable to accident, can be readily repaired, or replaced by the workmen usually employed on the canal. Besides provision being made for the floor system, which is the most subject to decay, to be of iron; the structures will be more durable, and at the same time possess all the advantages that could be derived from a bridge built chiefly of wood.

The "Galley Frames," to form centre bearings for the suspension cables, are to be of wood and iron combined, and on the cross-beams between them, a signal light can be exhibited to serve for both road and canal.

For the safety of the public, it is intended that a self-acting gate shall bar the road-way, when a bridge is open for the passage of vessels, and which will not be wholly removed, until the bridge is again in position, when a crossing can be safely made.

This gate will also serve the purpose, of carrying the towing-lines over the parapets, and raised portions of the stationary parts of the structure.

The machinery for turning the bridge, will be placed on one side of the centre, and so arranged that it can be readily worked by one person.

In all cases the turn-tables will be of the same pattern, and the respective principal parts of the superstructure of all the bridges will be alike, so that to keep a comparatively small supply on hand, of the different parts of each kind, will be likely to meet all the requirements.

The fixed part of the roadway over side channels, is to be formed by means of joists, on which to carry and fasten the floor plank; there is also to be a rolled girder on each side and a hand rail on top with a truss between them.

It is proposed to place the bridges under contract early next spring.

SECTIONS Nos. 21, & 22,—extend over a distance of about one and nine-tenths miles, embracing that portion of the canal between Allanburg and Port Robinson, and known as the "Deep Cut." They form the northern part, of what is called the Southern Division, which extends to Port Colborne, and is under the immediate charge of Mr. W. G. Thompson, whose report on the works is hereunto appended and marked B.

These Sections include the lowering of the bottom, to three feet below the level of the mitre sill of Port Colborne Lock, and increasing the width chiefly on the west side to one hundred feet at that depth. The side of the canal below the level of the towing path, to have slopes of two horizontal to one vertical, and the west bank above that line, is to have a slope of two and a half horizontal, to one vertical. To do this, the removal of 1,400,000 cubic yards of material, was estimated as necessary; about one half of which was over the level of the towing path, and one half under it.

The flat slope on the upper part of the bank was intended to lighten it, and in some measure guard against sliding, or settlement, to which the banks of this cut have been liable at times, ever since the canal was first made.

The upper part of the work is nearly finished, and about three-quarters of the material below the level of the towing path has been taken out, still a large portion of the quantity remaining extends over the entire bottom.

A considerable part of the material dredged out, has been taken down the Welland River in scows, to Chippewa and dumped in the rapids of the Niagara River, above the Falls.

It may here be stated, that the cut through this ridge has been a source of greater anxiety, than any other part of the line; resulting from the slides, and settlements, that have from time to time taken place in its banks, which are at some places nearly sixty feet over the canal bottom.

These slides have in some cases shown so slight a yielding at first, that they could scarcely be distinguished from sun cracks, which continued gradually to increase for years—in other cases they have occurred suddenly, and at places where no indications were before observed, and in one instance where the bank had been closely covered with sods, for a period of over thirteen years.

The east bank of the cut has been lightened also, by the removal of a strip of about forty feet in width from the face of it, and increasing the slope: under a contract for those purposes.

In this case, during the progress of the works, it was considered proper, to transport a large portion of the material to the north, or lower end of the cut; instead of purchasing valuable land for spoil ground, or interfering with the macadamized road between Allanburg and Port Robinson.

Since the banks have been lightened, the water of the canal has been at times quite as low, as ever it is likely to be during the season of navigation; still no indication of slides have been observed.

These conditions are doubtless new; but the fact of the banks remaining stationary for a time, or even for a series of years is not new; so that although the conditions are changed, there is no absolute certainty that the existing state of matters will continue.

It is no doubt true, that increasing the slopes, to some extent, lightens the bank; still it exposes a greater area to the action of rains, and the cutting effect of surface water during thaws.

They may, however, after having been a few years under the direct influence of the atmosphere, be again with advantage overhauled, when an attempt might then be made, to seed them down with some prospect of success; but it is barely possible that any seed would grow on material of the nature found in this cut when it is first exposed.

SECTION No. 23,—is about one mile in length ; it extends from a point near the south end of the "Deep Cut," to a little south of the floating towing-path bridge above Port Robinson, and embraces the construction of abutments, and piers for a swing-bridge, together with the works, and arrangements necessary for a set of guard gates near the north end of the section, besides the deepening, and widening, of the channel, removing the abutments of the present swing-bridge, and the walls, gates &c., connected with the old guard lock.

The principal object of constructing guard gates in the vicinity of Port Robinson, is to keep the water in the northern part of the canal, in case the upper or southern part might, from any cause, be emptied, and to effect this it will be evident that they must be situated, to the north of the outlet to the Welland River.

Keeping these facts in view, a site for them has been selected near the south end of the "Deep Cut," and, in order to be certain of having persons constantly in attendance at that place, it is proposed that the swing-bridge should also be located there.

This arrangement will doubtless be found of great importance to the interests of navigation, but it may be a little inconvenient to a few persons who reside on the west side of the canal ; still, when it is borne in mind that direct roads will be formed, to and from the bridge, there is reason to believe that the change will be found fully satisfactory to the public.

The water-way at this place will be in four divisions—the two middle openings are each to be forty-six feet in width, at the assumed Lake Erie level, and the side openings are each to be eighteen feet wide. The side walls are to be of masonry, carried up to a height to form bearings for the swing-bridge, and fixed structures at both ends of it.

The gate for each opening is to be in one piece, and the whole is to be arranged in such a manner that the gates, when not in actual use, are to occupy a horizontal position in the recesses formed in the bottom for that purpose.

Considerable quantities of timber, stone, and other materials have been provided, delivered, and prepared for the foundations, walls, &c., of the guard gates and arrangements made for proceeding with the works. But on a decision having been arrived at, that the water would not be taken out of the canal this winter, the preparation of materials was discontinued.

It may, however, be stated that under the impression, it might be an object to proceed with the works this winter, suggestions were made to place a dam on each side of the site of the structure, and to cut a channel around it for the water to pass ; but the probability of failure in carrying out, between the closing, and opening of navigation, such an uncalled for hazardous undertaking—apart from the expense inseparably connected with it, prevented the proposition being entertained.

The excavation for the enlargement of the channel has been proceeded with at a moderately fair rate—a large portion of that over the water surface is nearly completed,

and about one-third of the quantity of material in the widening, and deepening of the prism, has been removed, and deposited at places to make up low ground in the vicinity.

SECTION No. 24,—is about one mile in length. The works upon it consist chiefly in widening, and deepening the prism of the canal, forming towing-path, and banks, cutting ditches, offtake drains, &c.

Fully one-half of the excavation over water surface has been done, and at least one-third of the quantity of material necessary for the widening, and deepening has been removed, and such arrangements made as lead to the conclusion, that the operations are progressing fairly.

SECTION No. 25,—embraces the widening and deepening, of the channel for a distance of fully one mile, forming towing-path, and banks, cutting, ditches, removing the abutments, fenders, &c., connected with the present two swing-bridges, and the construction of the piers, and abutments for a new bridge to carry the traffic of the Quaker Road.

There are at present two bridges within the limits of this section ; the upper one called the Burgar Bridge, is really of very little use, except as a convenient means of communication, with a comparatively small area of land, lying between the Welland River and the canal. This bridge has long been looked upon as an outlay, both for construction and maintenance, from which few derive any benefit ; so that the question of its removal, when presented in a distinct, positive form, left little doubt as to the soundness of the conclusions arrived at.

It was therefore agreed, that if satisfactory arrangements could be made, for the purchase of the land on the east side of the canal, and that no formidable objections were raised by the public, the bridge might be done away with altogether.

After a time matters were arranged, the land purchased, and that part of the road allowance, between the Burgar and Quaker Bridges, was authorized by the Township and County Councils to be sold ; consequently a bridge at Burgar Road will be no longer required.

This, although a matter of little direct interest to the locality, is nevertheless of great importance to the navigation, and will considerably reduce the present outlay on the works, as well as diminish their future maintenance.

A large quantity of stones have been delivered, and part of them prepared for the abutments, and piers of the bridge at the Quaker Road ; but general arrangements for proceeding with this part of the works were discontinued, when it became known that the water would not be taken out of the canal this winter.

All the excavation on the section has been proceeded with rapidly: the greater part of that over the water surface, is already done, and fully one half the quantity of material, in the widening, and deepening of the channel, has been removed.

SECTION No. 26,—consists principally in widening, and deepening the channel for a distance of about a mile, for the lower one fourth of which the increased width is to be taken off both sides; thence upward, there being for the most part only a bank between the canal, and the Welland River, the widening will be taken wholly off the west side.

This part of the work has been proceeded with at a moderately fair rate, since it was placed under contract in August last, and so far the material has been found easier to excavate, than anticipated at the time tenders were received.

SECTIONS Nos. 27, & 28,—have not yet been placed under contract,—they embrace the enlargement and deepening of the channel for a distance of nearly two miles, including the building of several large, and important structures, all of which are in some way effected by the contemplated deepening, for the passage of vessels drawing fourteen feet of water.

On turning to the general report, on the subject of the enlargement, and deepening of this canal, previously referred to, it will be seen that it was proposed to lower the bottom of the present aqueduct over the Welland River, to admit of the passage of vessels drawing twelve feet water, and to build a separate structure to pass the necessary supply of water, "so arranged that its bottom would be about the level of the river surface."

There is every reason to believe, that this proposition could have been successfully carried out; but it is probable at an expense larger than warranted. in view of a greater draught of water being required within a comparatively short time.

It was then proposed to cut down the crown of the arches from ten, to twelve inches, for a space of twenty feet in the centre of the channel, and afterwards secure them with strong bands of wrought iron, let into the stone, &c.

The arch stones having two and a half feet width of bed, they might be reduced for the depth, and to the extent stated, but it certainly appears, as if these are the extreme limits to which the process could be judiciously carried.

If this be correct, of which no reasonable doubt can be entertained, it will be evident, that the only way of effecting the object, will be the construction of a new aqueduct, adapted to all the requirements of the enlarged scale of navigation.

The present structure is supported by four arches, each forty feet span, and seven feet rise, the under side of the centre parts of which, are fully five feet below the ordinary surface of the stream, so that it as a whole really forms a sort of dam, with openings through the lower part of it, of such capacity as barely admits the necessary volume of water to pass.

The river, although for the most part a dull sluggish stream, in which the water at times is even higher on the east, than on the west side of the aqueduct, still during

snow-floods and freshets, there is frequently a very considerable rise on the west, or up stream side. There is no other way for the river to pass than through under the canal, moreover its usual volume must pass at the time the new structure is in progress.

It may further be said, that the course of both the river, and the canal, together with their relative positions to the town of Welland, after a close examination of the locality, lead to the conclusion that the only place which can be judiciously selected is the bed of the river itself, at a place seventy or eighty feet west, or on the up stream side of the existing structure. In this position the northern entrance to it will be about the place at present occupied, by the lock between the canal and the river.

The archways through it will have to be about three feet lower than those of the present one, and the foundation will also have to be deeper, in order to provide a sufficient area for the water of the river to pass freely.

The body of the new structure, or that part of it which forms the prism of the canal, will require a mean width of about eighty two feet, and the bottom line of it will be five and a quarter feet, below ordinary surface water level of the Welland River.

The guard against obstructing the water flow, and, at the same time admit of laying part of the bed of the stream dry, when the works are in progress, it is proposed to widen out the channel on its northern side, by dredging, to such an extent as may be serviceable, and circumstances will admit, and at the same time deepen the entire area to be occupied by the works, to within twelve or eighteen inches of the contemplated foundation line

The new structure is to have six archways, and be built in two divisions, or at two different times. The first division to embrace the south abutment, and wings, and three, or may be four of the arches. The northern pier to be what may be called—in the absence of a better term—an abutment pier, of such dimensions as to resist the thrust of the arch, and so arranged as to prevent any tendency to move or slide on its foundation.

The space to be occupied by the first division of the structure, to be properly enclosed by coffer dams, care being taken to make the north end of the dam as well as that on the east side, as narrow as the requirements and circumstances will admit, so as to leave as great a width as possible for the water flow of the river.

There is reason to believe that by following this course, the foundation can be satisfactorily laid, and the masonry of the abutments, piers, and arches built, and part of the side walls carried up to over high water mark, when the haunches can be made up, and after being allowed a short time to set, the centres may be struck—the space under the arches secured, and the dams removed so that the water can pass on that side.

The second division may be then enclosed by dams and the space unwatered—the foundations laid, and the masonry carried up the same height as that first built, and connected with it.

The carrying out of the work in this way, will doubtless be attended with some degree of risk, but the building of such a structure must under any circumstances be an undertaking, which cannot be altogether free from difficulty.

There is, however, every reason to believe from the borings which have been made, that a good foundation can be obtained at the required depth ; a fact which of itself is of so much importance as to leave no doubt, whatever, as to the successful accomplishment of the object.

The lock at this place must be removed, as it now occupies a position considerably within the line leading to the proposed new aqueduct : if therefore this branch of navigation has to be maintained, as no doubt it will, another lock will have to be built.

This, it is believed can be done by placing it on the same side, and on the same course, but farther up stream than the present one, and by making a slight bend within the entrance leading to it.

It is probable that the approach to the southern end of the new aqueduct, may necessitate changing the site of the swing-bridge at Welland, to a place farther up, or to the south of its present position, and of arranging the piers so that it can be made with a double span, as is to be done at other road bridges.

The culvert which passes under the canal a short distance south of the present bridge at Welland, must be taken out and either lowered, or a new outlet formed into the river on the east side, for the back ditch which leads from near the junction, downward.

In the enlargement of that part of the canal between Welland and the junction of the main line with the feeder, the widening, for the greater part of the distance, must be done on the west side ; which at some places will require the space at present occupied by the old canal, now used as a head race for the water-power leased.

In fact either a new head race will have to be cut for the greater part of the distance, otherwise the mills will have to be bought out ; a matter well worthy of consideration, as it is not at all improbable that the latter might be found the best course to adopt.

By an Order of the Privy Council, dated 9th May, 1871, the Canada Southern Railway Company were granted permission to construct, and maintain a swing-bridge across the Welland Canal, near to its junction with the feeder, and also the right of way through the canal property, on certain terms and conditions, amongst which are the following :—

“ The Company to construct a proper centre pier, and abutments of masonry, the plan of which shall be submitted for the approval of the Minister of Public Works, whenever the Government may require the works to be done.”

“ That if so determined by the Department of Public Works, the Company shall

“be bound to build a swing-bridge of such construction, as to leave when open *two clear spaces*, each at least 45 feet in width between the centre pier and abutments.”

“That the Company shall execute, at its sole expense, all the work of excavation necessary to make and maintain these two channels, of a depth suited to canal navigation, as well as provide for the construction of a centre pier, abutments, guard piers, and other works required.”

“That both these channels shall be made through the ground occupied by the Railway, and for such a distance on either side of it, as the Department of Public Works may deem necessary, for the easy and proper passage of vessels.”

“That the company construct and maintain all works directly, or indirectly connected with the bridge, and form such an extent of the channel of the width and depth required for navigation, as the works of the company may, in the opinion of the Department of Public Works, render necessary, and shall grade a towing-path on both sides of the canal across the space occupied by the bridge, or other works connected with it, at their own sole cost and expense.”—&c.,—&c.,—&c.,—&c.

On the 11th November 1876, the company were informed by letter from the Secretary, “that in order to enable permanent piers, abutments, and other works connected with a bridge to be constructed at that place, the water of the canal will be lowered (as much as circumstances will admit) at the close of navigation 1877.

“It is therefore imperative that your Company should make the necessary preparations, and arrangements to execute the works, between the time above mentioned (December 1877) and the opening of navigation in the spring of 1878.

“The sectional area of the waterway of the new canal at all permanent bridge structures, is to be 1,900 square feet, and the foundation placed so as to be at least 15 feet below the surface water line.”

“The movable or swing portion of the bridge, should be arranged to rest on a pier placed on the centre line of the canal, on both sides of this pier there should be a clear opening of at least 46 feet in width for the passage of vessels; the greater sectional area required for the waterway, may be made by openings on each side, over which the bridge may be fixed.” * * * * *

“It is to be clearly understood that the Company are to submit to this Department (within four months from this date) for approval, a plan showing in detail the piers abutments, &c. together with a description of the class of work they propose to adopt.”

The enlargement of the channel at the Junction, together with the proximity of the railway crossing, to the bridge for ordinary road traffic, renders a change in the site of the latter desirable, for the safety and convenience of the public, as well as for interests of navigation.

This it is believed might be done by placing the bridge, at a point immediately south of the outlet from the Feeder ; where the general travel could cross on a continuous line with the bank above, and without the necessity of passing over the swing-bridge across the lock near that place.

SECTIONS Nos. 29, 30, 31, and 32,—are situated between the Junction and Ramey's Bend ; they include a distance of full three and three-quarters miles, the works upon which for the most part, consist in taking a continuous strip of about fifty feet in width off the west bank, and lowering the present bottom of the canal, from two to three feet throughout—placing the material excavated on the west side of the canal, at a proper distance from the centre line, forming a towing-path, cutting back ditches, &c., &c.

SECTION No. 29,—has been completed, and the works on Section No. 30 are well advanced, except the bottoming, the principal part of which has still to be done.

On the latter Section the Air Line (so called) of the Great Western Railway, crosses the canal by means of a swing-bridge, built for that purpose.

The Company were, by an Order of the Privy Council, granted permission to construct, and maintain a swing-bridge across the Welland Canal ; also the right of way through canal property, on similar terms and conditions as previously mentioned for the Canada Southern Railway.

On the 11th November last, the General Manager of the Railway was notified that the Company was now expected to make arrangements, for proceeding with permanent piers, abutments and other works stated in the conditions, under which permission to cross the canal was granted.

SECTION No. 31,—is also in a forward state—the widening over the water surface as well as that below it is nearly finished ; but there still remains from two to four feet of the bottom material in the channel, for the greater part of the distance, which it will take a considerable time to remove.

SECTION No. 32,—in December last was nearly in a like advanced state as Section No. 31, but on the 5th of the present month (January 1877). a slide occurred near the upper end of the Section, which has materially changed the condition of matters. A large portion of spoil placed on the west side has settled down, and the bank has been shoved forward twenty feet or more into the canal. At about 300 feet south, and 700 feet north of where the greatest quantity has been displaced, all indications of settlement cease.

The quantity of material forced into the canal, has been estimated at 23,400 cubic yards.

Various causes are assigned for this movement of the bank—one of which is, the height of the spoil, and its proximity to the side of the cut—another is said to be, the unsafe nature of the bottom; but the principal cause is represented to be the lowering of the water to the level of Lake Erie, before the dredged material placed on the banks had been consolidated.

The culvert for carrying the water of Lyon's Creek through under the canal on Section No. 31, has to be removed; but it forms no part of the present contract.

The old one is believed to be too small, to discharge the necessary volume of water during freshets, so that a new structure of larger capacity, will have to be built and placed at a lower level. It will also have to be of a peculiar construction, capable of resisting the upward pressure of the water passing through it, in case the canal should at any time be emptied.

SECTIONS NOS. 33, 34 & 35,—are situated between Ramey's Bend, and to the north of the harbor at Port Colborne—a part of the works still to be let—they are in the aggregate about two and two-fifths miles long, fully three fifths of this stretch is in rock cutting, where the present bottom is from 15 to 18 inches higher, than the mitre sills of the entrance Lock, and at that level the cut is from 56 to 58 feet wide.

The entrance lock being situated at a place, where the streets, running north and south, along the sides of the Harbor at Port Colborne, do not afford space for the formation of race-ways of sufficient capacity, to pass the necessary volume of water for the canal supply; it was considered proper to examine the locality fully, with a view of enabling a conclusion to be arrived at, as to the best course to adopt in the premises.

The various places that were found to be anything like favorable will therefore be referred to, in ascending order as follows:—

1. Immediately below the village of Stone Bridge the canal has a course nearly south-west; then it takes a more southerly direction; the angle thus formed seemed to offer a site for a lock, that would admit of executing the principal part of the work during summer; and the adjoining bend in the channel was looked upon, as nearly sufficient to allow the water supply to pass freely.

By the adoption of this arrangement, the water flow between Port Colborne and Stonebridge would be unchecked; except at the bridges, of which there would be three between Lake Erie and the lock.

It is, however, to be feared that the frequent and sudden variations of the water level, to which the cut would then be subject, might endanger the stability of the sides, especially, as at some places the material is of clayey nature, and at other places there are intervening layers of hardened clay between the beds of rock.

2. The next place where the object could be effected, without much interference with private property, was found to be a short distance below the closely occupied part of the village of Port Colborne, where the Government owns a considerable stretch of land on the west side of the canal.

At this place a channel might be cut on the west side and the navigation, turned through it, so as to admit of dams being constructed, and a lock built in the present canal during summer.

This temporary channel might form part of a supply race, after the new lock had been brought into use.

There would doubtless be a good deal of difficulty, in making the coffer-dams staunch, as well as risk connected with them, and in other respects, unwatering the works, but there is every reason to believe that it could be done.

This location, however, would be liable to some of the objections mentioned as due to the lower site, but they would be less in degree. There would still be two bridges between the harbor and the lock—one belonging to the Buffalo and Lake Huron Railway, which cannot be changed without great trouble and expense,—the other is a road bridge, to the position of which many of the inhabitants of Port Colborne are so strongly attached by ties of interest, as well as of convenience, that it is questionable if they would willingly consent under any circumstances, to have the site of the crossing altered.

Attention has been drawn to these two places, chiefly to show that there are difficulties to be met with, in carrying out this portion of the works, in even the most favorable position, that under the circumstances can be selected.

It has been already stated, that the comparatively narrow space between the streets on the east and west sides of the canal, is insufficient to admit of forming raceways of the capacity required to pass the volume of water, necessary to supply the canal.

It might be therefore well to leave the present lock undisturbed, and to build a new and enlarged lock, between it and the east bank, at the same time acquiring as much of the adjoining property, as would be sufficient for a street.

By adopting this course, there is every probability, that there would be no necessity to form a dam across the basin, and that the lock could be built during the season of navigation, when the weather is most favorable for that purpose. The saving thus effected would warrant a considerable expenditure, if required, in the purchase of property.

To secure the means of passing the necessary supply of water, an independent channel might be made, on either the east or west side of the harbor and canal, where the most suitable and best arrangements can be made for accomplishing the object.

A swing-bridge can be constructed to span both the new lock and the present one, and placed so as to work on the centre pier between them.

The Buffalo and Lake Huron Railway, (now leased to the Grand Trunk Railway), have a bridge over this canal, near the lock at Port Colborne. Previous to its construction, there appears to have been (in 1852-53), a considerable correspondence between the Company, and the Board of Railway Commissioners, on the subject of the crossing at that place.

The Railway Commissioners, however, strongly objected to it, and warned the Company that, "as soon as the Lake Erie level should be adopted, the Railway will be materially obstructed, by the constant passing of vessels into the inner basin," * * * "that the navigation of the canal cannot be interfered with," * * * and conclude by stating that "the Commissioners, while entirely objecting to the proposed site of the bridge, think it proper to say that, should the company persist in erecting it near the Guard Lock, it should be at least 180 feet distant from the wing of the lock."

There does not, however, appear to have been any permission granted by the Department of Public Works, for a railway crossing at that place; although this Department, under the Public Works Act, has the sole control of the Welland Canal, and the lands connected with it.

The only reference made to the subject, is in the Annual Report of the Commissioners of Public Works, dated August, 1852, which states that:—

"On their late inspection of this work," (the Welland Canal) "the undersigned found that it was intended, that the line of canal should be crossed by two railroads, now in progress in that section of the province: the Brantford and Buffalo Railroad, and a continuation of the Great Western Railroad, from Hamilton to the Niagara frontier—the former to cross the canal twice, and the latter once."

"The mode and plan near Port Colborne lock, at which it was proposed the Brantford road should cross, has been considered objectionable, and as tending to obstruct the navigation; the other point of crossing by this road is not deemed objectionable."

It therefore appears, that as the time is now all but arrived, when preparations should be made for introducing the waters of Lake Erie; and as a much larger area of opening, to furnish the supply, is necessary, than there is at present: that the Railway Company, if they are allowed to continue to enjoy the privilege of such a crossing—must provide at their own cost, and expense such other bridges, and works, as they may require for their purposes, subject, however, to the approval, by this Department, of plans of the structures, which the company may intend to carry out.

A new swing-bridge, together with the necessary piers, and abutments, will also have to be constructed, at the Village of Stonebridge.

In all rock cuttings on these Sections, where the sides have only a slight inclination, the channel will be made a mean width of 126 feet.

It is proposed that the various works referred to, as well as all others connected with this part of the canal, shall be placed under contract as early as circumstances will admit.

SECTION No. 36,—embraces the enlargement and deepening of Port Colborne Harbor, or Lake Erie entrance to the canal, including the extension of the west pier about four hundred feet farther into the Lake—deepening the entrance channel, from the lake, inward—re-building the superstructure, of part of the west pier, and the whole of that on the east side—constructing a Beacon, on the south-east side of the entrance (near the place where a buoy used to be moored), and building four detached blocks of pier-work, between it and the outer end of the present east pier—removing and re-building about seven hundred feet of the west docking, from the Ferry recess outward—deepening and enlarging the basin, &c., &c.

The channel from the lake, northward, to about the southern line of the contemplated enlargement of the basin, is to be sunk to a depth of seventeen feet below low water line, and from the latter place to the north end of the basin, the depth will gradually diminish to sixteen feet, at a time when the water stands at twelve feet over the mitre sill of the present Lock.

Previous to receiving tenders for the works, contractors were informed that the material to be removed from the bottom of the channel and basin, embraced two kinds of work, "one of which can be executed by means of an ordinary dredging machine ; but "the other consists of a hard class of rock, with numerous nodules of flint interspersed."

In excavation through rock, the mode adopted has been to drill, and blast from the deck of a vessel held in place by anchor timbers resting on the bottom, and subsequently removing the loosened material by an ordinary scoop dredging machine.

This system has so far been quite successful, owing no doubt, in a great measure, to the use of nitro-glycerine as an explosive, and the skilful arrangements made by the contractor, in conducting the operations in all their different stages. Still, with all the care and precautions adopted in storing and handling the nitro-glycerine, an explosion in some unaccountable way occurred on the 30th of October last, by which one man was killed ; and some damage was done by the concussion to property in the village of Port Colborne.

Fully one-third of the quantity of rock has been removed, and a considerable extent of ordinary dredging has been done.

The west pier has been carried to the full extent, and nearly to the height contemplated—the beacon to mark out the end of the eastern reef is in position, and carried up to twelve feet over the water surface ; and two of the detached blocks, on the east side of the entrance, are in place and completed.

When the beacon was first placed ; public notice was given through the newspapers, as well as by printed hand bills, distributed by the collectors at both ends of the canal.

A like course was followed when the extension of the west pier was commenced, and at the same time a low small light was exhibited at its outer end, of which due notice was given.

The works have been proceeded with in an energetic and generally in a satisfactory manner, from their commencement up to the present time.

As previously stated, the time fixed for completion of the works, on the different sections of this canal, is stated in the respective contracts to be April, 1877.

Although they are for the most part of considerable extent, there is reason to believe that under ordinary circumstances, the object could have been effected within the time agreed upon.

It was soon ascertained, however, that quarries were more difficult to obtain than was at first anticipated, and that when found the stones, although of the best kind, are of a nature that unless for some time exposed, to the action of the atmosphere before winter sets in, they are liable to burst or be broken up by frost. This limited the time to which quarrying operations could be safely carried on, to about six months in the year.

Another serious cause of delay was the repeated strikes amongst the workmen, which were sometimes brought about in a way nearly, if not altogether, beyond the contractors' control.

These and other causes of a like nature, led the contractors to make an application in May, 1876, for a longer time to complete the works.

It was then quite evident that an extension of about one year would have to be granted ; still, it was not considered judicious to take any direct action in the matter, so long in advance of the period originally fixed upon.

It is now, however, desirable that arrangements should be made with the contractors, and their sureties for that purpose, as soon as circumstances will admit ; or, at latest, before the first day of April next.

GALOPS RAPIDS, RIVER ST. LAWRENCE.

At ordinary stages of the water of the St. Lawrence, descending vessels of all classes, pass *via* the river from Prescott to Dickenson's Landing, in preference to passing through the Williamsburg Canals. This is considered to be an advantage, not only from it requiring barely one-third of the time, to make the trip between these places ; but from the fact that vessels are less liable to injury in the river than in the canals.

It may also be said, that vessels of sufficient power to ascend the Galops Rapids, occupy about one-third less time on the upward trip, between the same places by the river, than they do when obliged to pass through the canals.

The rapidity with which the downward trip can be made, when the water is at its usual height, has long been looked upon, as an important feature of the route,—a fact brought out more prominently, in a comparison with periods of extreme low water, when it cannot be taken advantage of.

It is true, that even at these times, the present class of vessels can, with very great care, make the downward passage under the management of a skilful pilot; but all vessels, even light passenger steamers, must then ascend by way of the canals.

Various plans have been from time to time suggested, with a view to obtaining a greater depth of water in the different rapids; and in a general report on the Navigation of the River St. Lawrence, between Lake Ontario and Montreal, dated July 1874, the matter is again brought under notice. This was done under the impression that the question, important at all times, pressed itself still more forcibly on the attention at a time when matters, connected with the enlarged scale of navigation, were under consideration.

It has been fully ascertained that from Kingston to Dickenson's Landing, those parts of the river at, and in the vicinity of Galops Rapids, are the only places which bar the channel to vessels of greater draught, than the class at present in use.

To meet the case, for a line of twelve feet navigation, it was proposed to contract the channel below the "Chute," by means of wing-dams, constructed at "McLaughlan's Point," and at a point on "Galops Island" opposite Little Bay, and in this way raise the water above, as well as spread the current over a greater range. It was further proposed to construct a dam through the passage called the "Gut," between Galops, and Adam's Islands, which it was thought would have the effect of throwing the current, more towards what is called "Pier Island," and thus enable the deep-water channel, alongside of Adams' Island, to be advantageously used, and thereby avoid the necessity of cutting a line through "Flat Rock Shoal."

To carry out these plans, would doubtless be attended with considerable expense, and some degree of risk, both in the way of execution, and the actual results of the undertaking. It was, however, believed, that a series of well directed efforts, would have been ultimately successful in forming a channel, adapted to the passage of vessels of the draught contemplated.

This having been effected, it was presumed that, by a system of submerged chain towing, such as that in use elsewhere, the upward passage of vessels could be facilitated, without interfering with those descending.

In favor of this course it was stated, that a direct pull from a fixed point, is a more effective means of hauling a vessel up a current, than any method in which the propelling power applied, depends solely upon the resistance of the water, as a fulcrum, to effect the forward movement of the vessel.

It was further stated, that the successful application of a system of a chain towage, at other places below, in a great measure depended upon the depth of water, that could be obtained in the Galops Rapids. Moreover, it was evident then, as well as now, that if the improvements at Galops were effected, and arrangements made, by which vessels could be towed upwards, through all the rapids, from the head of the Cornwall Canal to Prescott, that the enlargement of the Williamsburg Canals, other than the lengthening of the locks, would not be required.

It is deemed proper again to state that the scheme above alluded to, had a direct reference to a depth of water suited to the passage of vessels 12 feet draught.

The decision afterwards arrived at, in April 1875, that the permanent structures on certain of the canals, should all "be adapted to a depth of water, corresponding to 14 feet on the mitre-sills of the Locks," seemed then as now, to indicate clearly, the desire of eventually making a line of 14 feet navigation throughout.

In this view of the matter it became quite evident that the extent of the works would not only be greatly increased, but that a number of changes would be necessary in the design submitted in the general report made the year previous. These remarks apply to all the canals between Prescott and Montreal, and to many places in those parts of the river between them ; but they are especially applicable to the works required to be done, in order to obtain a greater depth of water in the Galops Rapids, and the shoals in that vicinity.

The latter places, presenting the first obstructions to descending vessels, and as their removal would throw open a long stretch of deep water navigation, it was thought best to direct attention to them. But at the very outset, it was found that the nature and extent of the bars were unknown, and that there were no means at command, by which that class of information could be obtained. The most powerful steamer could not remain long enough at one place in the rapids, to enable even the depth of water to be correctly ascertained. It was therefore believed, that a "Chain Vessel" fitted up in such a manner that it could be held steady in position at any place, was the best, if not only way of accomplishing the object. Moreover, it was thought that the equipment of the vessel might be such, that the principal operations connected with deepening the channel, might be carried on aboard of it. At all events the objects contemplated were looked upon as of so great importance that some degree of risk, if necessary, might reasonably be encountered in endeavoring to carry them into effect.

Arrangements were therefore made for the construction, and fitting up of a chain vessel, of such power as would be fully equal to the service of enabling a satisfactory

examination of the rapids to be made ; with a view of ascertaining the nature, and extent of the obstructions that would have to be removed, or otherwise overcome.

The vessel is 112 feet long, 27 feet breadth of beam, and $7\frac{1}{2}$ feet depth of hold, from top of floor timbers to top of beams ; it is built in the most substantial manner, with double frames of best white oak timbers, twenty-four inches apart from centre to centre.

A heavy Howe-truss connects the keelson and central stringer, under the deck beams, for the whole length of the vessel, with diagonal braces, wrought iron tie-rods, and bolts throughout, fastened in every way likely to increase the security, and strength of the vessel.

The engines are high-pressure and condensing, have two cylinders of twenty-two inches diameter, and five-foot stroke: they are built exceedingly strong, and fitted up with all the latest improvements and equipments, and finished throughout in the best possible manner.

The power is generated in two boilers of ample capacity, the shells of which are of the best "Thornycroft" plate, double rivetted, fire-boxes of the best Low Moor iron, and the whole well stayed. All necessary mountings are provided, such as guage-cocks, lock-up and open safety-valves, &c., &c.

Provision has been made to keep the vessel steady, when used for drilling or exploring service, by means of anchor timbers or "spuds," which pass down through well-holes formed through the deck, and bottom of the hull, four in the forward part, and two in the after part of the vessel.

The anchor timbers are raised and lowered, by means of heavy rack gearings connected with the sides of the wells, and on the four in the forward part of the vessel, steam (percussion) drills have been fitted up, to work on slides, on the down stream sides of them, and balanced with counter weights passing over pulleys, on the tops of the respective "spuds."

Steam from the boilers is brought to the drills by suitable pipes, carried along under the deck beams, and connected with flexible rubber coupling pieces.

The vessel was built, and all the machinery connected with it, made and fitted up under a contract, for that purpose, with E. E. Gilbert, of Montreal.

The chain on which the vessel works was made to order ; the links are of a special length, forged from $1\frac{1}{4}$ inch iron, and tested at Lloyd's Proving Works, in pieces varying from 293 to $323\frac{1}{2}$ feet in length ; each test was 21 tons, 4 cwt., 1 qr., and five links of three different pieces of the chain were submitted to a breaking strain, and parted at $44\frac{1}{2}$, $44\frac{3}{4}$, and 46 tons respectively.

A certificate from the Superintendent of Loyd's Proving House, accompanied each length of chain.

On the 20th August last, the contractor delivered the vessel in the Galops Canal, and on the 23rd it was with the assistance of the steamer "Chieftain," engaged for that purpose, taken across the main channel. and moored at a temporary wharf built at the foot of Adam's Island.

From the experience gained in getting the vessel into the eddy, between the north Channel and "Gut," fears were entertained that one steamer would not be sufficient to enable the cable to be laid on the proper line. The tug "Arctic" was therefore engaged to assist, and on the 24th the object was so far successfully accomplished, that the chain was placed, and the vessel stationed on the line intended for the centre of the contemplated channel.

It was then ascertained, that several important parts of the vessel had to be overhauled, and other equipment provided, before it was considered safe to attempt passing the oblique currents, that are opposite two salient points of Galops Island. On these matters having been attended to, an attempt was made gradually and cautiously, to acquire a knowledge of the strength and set of the currents, and their action on the vessel, before exposing it in a degree greater than the circumstances or the locality seemed to warrant.

On information looked upon as reliable, the officers entrusted with the management of the vessel, appear to have been under the impression, that in order to keep on the line, the chain should not only be laid straight, but hauled as tight as possible, and made fast at both ends.

In addition to this, attempts were made by transverse fastenings, to keep it up to the points above-mentioned, still the oblique current forced the vessel so much out line, as to form a sort of bight in the chain, causing it to enter and leave at such an angle, as had the effect of binding the pulleys at both the bow and stern, thus bringing the vessel to a stop when working with the ordinary power.

After many attempts and failures of this kind, it was decided that there should be no unnecessary length of chain used, and that the lower end of it should be left free. On the adoption of this course, it was found that the vessel was at all times under full control, and that in swift parts of the current it could be held nearly as steady as at other places.

On the line of the proposed channel through the rapid, a number of holes were drilled two feet into the rock which forms the bed of the river; and some of them at places where the water at the time was fully fifteen feet deep. It should, however, be stated, that the season of navigation was nearly closed before arrangements could be made to test the drilling operations, and that there were no skilled workmen on hand for that purpose.

Judging from the experiments made, and latterly by the manner in which the vessel could be controlled, there seems to be no reason to apprehend difficulties which cannot be successfully met, especially in view of the improvements which can be readily made in the arrangements for effecting the contemplated object.

As previously stated, the season was well advanced before the chain vessel was got into fair working order; attention was therefore principally directed to determining the position, nature, and extent of the different bars and shoals, in the rapids and their vicinity. This examination was intrusted to Mr. Tom S. Rubidge, whose full and descriptive report on the subject is hereunto appended, marked C.

The line of channel now recommended for improvement, skirts the shoal on the north-east point of Adam's Island, and the north point of the south shoal, at the outlet of the "Gut" channel. The whole of the contemplated width being north of these points, and at the lower one it inclines slightly toward the south-east, until it passes the bar to the south of the chute.

It is believed that this line can be deepened at less expense than any other that could be selected, and when improved will be the best suited for the passage of large vessels as well as for the successful working of a system of chain towage. Moreover *seven-eighths* of the whole of the necessary works, can be carried out without interrupting or being interrupted by passing vessels or rafts.

From deep water below the lower bar, to a point at the upper entrance of the Galops Canal, there are four different places where excavation would have to be done, to obtain a channel 200 feet wide and 16 feet deep at low water, or at a time when there is a depth of 9 feet on the sills of the Entrance Lock.

At all places where deepening or widening of the channel is necessary, it has been found after a careful examination, that the bed of the river is hard limestone rock.

The lower bar extends from Galops Island to the north shore of the river, on the lowest part of which, or where the proposed new channel is to be formed, the water varies from $10\frac{1}{2}$ to $13\frac{3}{4}$ feet in depth, for a distance parallel with the stream, for about five hundred feet. This will require the removal of nearly 15,500 cubic yards of rock.

From the up stream side of the lower bar, to what is called Island Shoal, a stretch of 330 feet the depth of water is from 16 to 28 feet. The latter shoal is about 350 feet across, in line of channel, and the water over it is from $10\frac{1}{2}$ to $13\frac{3}{4}$ feet deep.

To obtain a depth of 16 feet of water on this shoal, will necessitate the removal of 10,400 cubic yards of rock.

For the next 400 feet upward, the depth is from 16 to 27 feet; but for nearly 150 feet at the upper end of this stretch, the deep part of the channel is contracted by two shoals, to a width of very little more than 150 feet, one of which extends from the

north shore, at a place abreast of the guard lock ; and the other on the south side, nearly in line of the " Gut " Channel.

The outer point of the north shoal must be taken off to obtain the necessary width ; although the quantity of excavation for this purpose, will be comparatively small, the set of the current, together with the passing of vessels and rafts of timber, will render the work of a difficult nature.

From the latter place to the upper shoal, which is nearly opposite the entrance to the canal, the distance is 1,150 feet, and the depth of water varies from $16\frac{1}{2}$ to 30 feet.

This shoal is 250 feet long in the direction of the stream ; its average width is about 80 feet, and on it the water is from $12\frac{1}{2}$ to $13\frac{3}{4}$ feet deep.

It lies directly in the main channel, so that the operations connected with lowering the bottom in such a position must unavoidably be attended with considerable difficulty ; still there is every reason to believe that it is quite practicable.

From the foregoing remarks, together with the information contained in Mr. Rubidge's letter (appended), it will be seen that the bed of the river at this place has been carefully examined, and all its principle inequalities, bars and shoals fully ascertained. The result of which shows that in every case where an obstruction exists, there is immediately below it a stretch of water from 8 to 10 feet deeper than required for the contemplated channel.

This in connection with other matters, bearing directly on the subject, leads to the conclusion, that the best, if not the only way of obtaining a channel, suited to the enlarged scale of navigation, is that of lowering the shoals, and bars on the line, and dragging the loosened material into deep water below them.

In order to have in some measure steerage-way, and make an allowance for the settlement and surging of vessels when passing through the rapids ; the depth for a fourteen feet navigation should not be less than 16 feet at low water.

To attempt obtaining this depth of water, in any other way than by lowering the bottom, would not, there is reasons to believe, be attended with anything like success. It is quite probable that by a system of wing dams, the water might have been raised to pass vessels drawing ten feet. Further, that by extending the system of wings dams at the rapid, and, in addition to this, closing the " Gut " Channel, the centre of which is understood to form the boundary between the United States and Canada, a depth might possibly have been obtained by which a vessel, drawing 12 feet of water, could have passed at ordinary stages of the river.

The latter project it is presumed, could only be carried out with the sanction of the United States Government, and although it might in some respects be beneficial, it is questionable to what extent. Whilst it will readily be admitted that the St. Lawrence is on too grand a scale for uncertain experiments.

It may, however, be said that the depth of water in a rapid, will not increase to the same extent, as that to which the bottom is lowered, as the surface will be likely, in some degree, to diminish in height.

This is doubtless true, but there is reason to believe, that the difference between the depth of the rock removed and the depth of water obtained, will bear something like the proportion, that the additional sectional area given to the channel formed, does to that of the river, which, in the case under consideration, will be practically very little.

Taking all these matters into consideration, especially the fact that such a knowledge of the bed of the river has now been obtained, as enables a correct estimate to be made of the quantity of material to be removed ; and that a vessel can be kept sufficiently steady in the rapids, to admit of drilling and other operations being carried on. It is believed that it might be well to invite tenders for the work.

This course is recommended under the impression, that it can be done cheaper by contract, than in any other way it could be carried on directly under the Department.

If this view of the matter is accepted, the contractor might be allowed the use of the chain vessel, which has been provided and fitted up chiefly for that purpose. This might be done under such stipulations, as could insure its return, in as good condition as when handed over to the contractor—ordinary wear and tear excepted.

CORNWALL CANAL.

In July last tenders were invited by public advertisement, for the formation of a new line of entrance at the lower end of this canal, and on the 9th August, they were received, when the works were shortly afterwards awarded.

The plans, and other documents connected with them, provide for all permanent structures, to be placed at a depth corresponding to 14 feet water on the mitre sills of the locks ; as instructed by Letter No. 35,266.

It may here be stated that there are on the old line three Locks near the outlet of this canal, which have an aggregate lift of about twenty-four feet, when the River St. Lawrence is at its ordinary height. The locks are 200 feet long, with reaches of 331 feet between them, and are adapted to the passage of vessels drawing 9 feet of water.

To make them of the dimensions now contemplated, their bottoms would have to be lowered *five* feet, and the side walls lengthened seventy feet, which in reality means, taking down the present structures, and building others.

This could not, of course, be done during the season of navigation, and it is questionable if it could be accomplished at all during winter, unless by incurring an expenditure, greatly beyond what the circumstances would warrant. It being a well known fact, that at a point in the river some distance below the outlet of this canal, an

ice jam almost invariably occurs every winter, which has the effect of raising the river sometimes as much as twenty feet, so that it frequently covers the two lower locks.

Having such a phenomenon to contend with, it is barely within the range of possibility, that the requisite dams could be constructed,—a lock taken down,—another built in its stead, and the dams removed between the closing of navigation, in December one year, and its opening the following May.

This, together with the deficiency of space between the locks, and the fact that it would be still farther reduced by lengthening them, led to the selection of a new line and the adoption of the plan of rising from the river to the Cornwall level by means of two locks, and making the reach between them of such a length, as best suited to the circumstances. At the same time keeping in view the fact, that two vessels each of full canal dimensions, coming out of locks at the same time, but going in opposite directions, could not pass each other freely, in a reach of less length, than two and a half times that of the largest vessels used.

The new entrance channel is to be on the south side of the existing one, and in such a position, that the respective centre lines of the two routes, will be three hundred and fifty feet apart at the head of the present outlet lock, and four hundred and twenty feet apart, opposite the head of what is known as Lock No. 17.

For a distance of fully two thousand feet at the lower end, the line will be straight, and then curve round gradually, until the new south bank corresponds with that of the old canal, at a point nearly opposite the lower end of the landing wharf, at the Town of Cornwall. The whole of this part of the work is let in one Section, which extends from deep water in the river, to within about twenty-five feet of the lower end of the wharf above-mentioned.

In case satisfactory arrangements can be made with parties interested in the adjoining property and the water power at the lower end of the canal; the water on what is called the Cornwall Reach is to be raised about two feet, and the difference between that level and the River St. Lawrence will be overcome by means of two lift locks.

The lower, or entrance, lock on the new line will be placed in such a position, that its lower gates shall be opposite the upper gates of the present outlet lock, and the lower quoins of the second lock, will be opposite the head gates of the third lock of the old canal.

A regulating weir and race-ways will be constructed on the south side of the new line—the weir to be placed opposite the lower gates of the second lock, and the head race to it will connect with the canal at a point about 250 feet above the lock.

The tail-race from the weir will be kept at a height to supply the reach between the locks, and from it an outlet will be formed of sufficient capacity to discharge the surplus water into the river.

This plan of regulating the water levels has been adopted in preference to discharging the surplus water through the present locks, and attempting, from that source, to supply the reach between the two locks on the new line.

By carrying out this arrangement, the old locks, and reaches between them, can be advantageously used as graving docks, for the repair and overhauling of vessels, a kind of accommodation which will, doubtless, on many occasions, be found of great service.

In September last, the works were commenced at the upper end of the section, by preparing a seat for the south bank, through the low ground and outer edge of a bay, near the place, where the new and the old banks connect.

When doing this it was found that a considerable quantity of muck and loose earth had to be removed, before a stratum was reached of so retentive a nature as would be likely to prevent leakage.

The operations were proceeded with slowly for a time, but the force was gradually increased to the full extent, which the circumstances warranted, and the work of excavation carried on, as the weather permitted, up to the latter end of November, when they were closed for the season.

During this time, a sewer, which passes under the old canal, was extended out to the edge of the river, four feet under the bottom of the new line.

The contractors were also engaged searching for quarries, and, about five miles back of Cornwall, were successful in finding a place where very good stone for the bulk of the masonry can be obtained.

The place from which the face-stone of the locks is to be taken has not, however, been fully determined; but there are several good limestone quarries in view.

Before leaving this important link of the canal system, it is deemed proper to draw attention, briefly, to a few of the alterations, which, increasing the draught to 14 feet, will render necessary.

In the general report on this subject, dated July 1874, it was intimated that for a twelve feet line of navigation, the water might be raised between Locks Nos. 18 and 19, so that the dimensions required for the enlarged locks, could be obtained by lengthening and raising the walls.

The arch of the culvert for the road leading to Barnhart's Island, was represented to be of a height, that would admit of lowering the bottom of the channel, but it would have to be lengthened to obtain the necessary width of water-way, whether the water be raised or the bottom lowered.

Further, it was stated that by lowering the bottom and arches, and lengthening the culverts at Mille Roches and Moulinette, they might possibly continue to answer the purpose, although in a less efficient way.

The circumstances are, however, quite changed by the depth contemplated, so that the bottom of the channel from Lock No. 18, upwards, to deep water at the entrance, must throughout be lowered, the channel widened, and new locks, in every case, built.

LACHINE CANAL.

This canal having often been described; its dimensions, and those of the structures upon it frequently given; it is deemed unnecessary to repeat them, or say anything more, relative to its present capacity, than that it has been long looked upon, as inadequate to meet the wants of the trade. This is especially the case, at the Montreal terminus of the line; where the accommodation during busy seasons, has been found so unequal to the requirements, that delays have been often experienced, and, doubtless, loss sustained from this cause, by those engaged in shipping.

It is true the general depression, in all branches of business connected with the carrying trade, for the past two years, has prevented this deficient accommodation, from being felt to a like extent, as was done in previous years; there is, however, reason to hope that the present crisis, like all others which have come before it, will ere long pass away, and that the pressure for more space will return, with even greater force than formerly.

The extremely low rates of grain freights on the western lakes, have prevented any other than the largest class of vessels, engaging in that business successively; small vessels being unable from their earnings to pay the necessary expenses, are in many cases tied up idle.

The experience of the past few years, has already established the fact, that there is little inducement to build vessels, with a view to their employment in the grain trade unless they are made of the largest class, capable of navigating the lakes, and such as may be expected to occupy to the greatest advantage, the enlarged canals now in progress of construction, by the Government of the Dominion.

Some recognized authorities, however, entertain serious doubts, if any sailing vessels can successively compete in carrying grain, with the system introduced within the past few years, of using large barges towed by steam.

It is believed by many, that the depressed condition of business, and consequent low rates of water borne freight, has in some measure been brought about, by the great trunk lines of railway to, and from the west, carrying at unremunerative rates, in order to secure a through business, and compete with each other. This too at a time, when some of them are contending for a bare existence, and some of them are nearly, if not altogether, in a state of bankruptcy.

The evils of this unhealthy competition, are still further represented by many observant, and prominent public bodies, to result in less attention being given to local traffic, and to a system of discrimination which bears extremely heavy upon it.

At all events, the fact remains that the business is done, and the more northern, and longer roads, as well as water routes of limited capacity, are, in a measure, at the mercy of the shorter, and more southern lines of railway.

This, it is believed by many, will cease when the prevailing system has yielded (which it must eventually do), to the more legitimate course of doing business at remunerative rates only, whatever may be its extent. It is, however, presumed that the discussion of all such questions, may fairly be left to those, either directly interested, or who have given special attention to them, and are therefore in a better position, and in every respect better qualified, to deal clearly and fully with the subject.

When the enlargement of this canal was under consideration, the fact was kept in view, that it had to accommodate the trade of the River St. Lawrence, both for export and otherwise, also the lumber trade of the Ottawa River, for both the Quebec and American markets; it was therefore recommended to be made of a greater sectional area, than any other division of the canal system.

At the outset, the most important matters which presented themselves were the entrance at Lachine, and the outlet in the Harbor of Montreal, with the wharfage accommodation at the latter place.

The bottom part of the basin, at the upper entrance of the present canal, was known to be rock, through which a channel about 100 feet wide had been formed, to a depth at low water suited to the passage of vessels drawing 9 feet. It was however found that the fluctuations of the river had not been fully ascertained when the bottom line of the channel was fixed, as at extreme low water vessels loaded down to their full draught could not enter freely. In the years 1855 and 1856 the outer or river pier was extended fully 450 feet further up stream, which, in addition to improving the immediate entrance, had the effect of raising the water fully six inches, and to that extent benefitted the water-way.

When first forming this channel the basin was laid dry, after a water-tight dam had been formed on the south side, and another across the upper end of it.

It was at once evident that between the closing of navigation one year, and its opening the following spring, no such course could be adopted with any prospect of success, especially for the enlarged channel, which required to be sunk fully five feet lower, and made at least 200 feet in width.

To meet the case various lines and places were examined, the highest of which was Leishman's Point, near the place where the Lachine Railway wharf is situated.

At this point a good depth of water was found near the shore, but there is no natural basin nor shelter; neither could any be formed (within the limits of a reasonable

outlay) of an extent that could be called a harbor, or suitable entrance to so important a work.

These, amongst other but less forcible reasons, led to the conclusion that the public interest would not be consulted by the formation of a canal, that would connect with the River St. Lawrence, at a point north of the village of Lachine.

A thorough examination of the present basin was also made, with a view of ascertaining the probable cost of forming a new line, a short distance north of the present channel, and constructing a guard lock on that side; the result of which showed that a very good line could be obtained, but at an expense not warranted by the circumstances; especially as it would greatly diminish the space, now occupied in the basin for other useful purposes.

A careful examination previously made along the south-eastern, or river side of the present channel, shows that the depth of water and bed of the river are both more favorable for the formation of an entrance channel and basin, than any other place that could be selected in that vicinity. On full consideration, it was, therefore, recommended for these, and the following reasons:—

1st. The works connected with its formation and construction can be carried on without in any way interfering, with the navigation of the present canal.

2nd. About three-sevenths of its length, is already of the full depth required for a channel, suited to the enlarged scale of navigation.

3rd. It gives upwards of 20 acres of basin space, in addition to a channel-way 200 feet in width, making in all an area of about 48 acres. To obtain this, no private property is required, except for the purpose of forming a continuation between it and the canal.

From this point downward, various plans have been suggested, with a view to the formation of a channel, of the capacity required for the enlarged scale of navigation. The most prominent of which, at the time, was that of making an entire new line for the greater part of the distance between Lachine and Montreal, and one for the deepening and enlargement of the existing channel.

On the north-east side of the present line is a long stretch of low ground, known as the Lachine Swamp, which, on a cursory examination, is apt to lead to the impression that a new line of canal might readily be made through it. But on looking closer into the matter, it was found that a proper foundation for a bank, could not be obtained without very great difficulty, as the material consists of muck, heavily charged with water, and varying from five to nine feet in depth below canal bottom, for a stretch of fully half a mile, and, even at the depth stated, there seemed very little probability of finding the bottom of so retentive a nature, as would be likely to prevent leakage. Moreover, there is no suitable material for making a water-tight bank, within a long distance of the place.

The scheme for enlarging the present canal is looked upon as free from all risk likely to result from leakage through the banks or bottom, and it was ascertained that the emptying of the canal during winter, whilst the operations were in progress, would not be so serious a matter as at first apprehended.

In short, it was urged that one large canal was better as a navigable channel, than two canals of less dimensions, a matter so well known to those acquainted with the movements of large vessels, as to require no further proof than simply to state the fact.

is, however, deemed proper to remark, that the resistance to a vessel passing through a wide space of deep water, is less than through an ordinary canal. The case, as represented by recognized authorities, seems to be, that resistance rapidly increases as the channel diminishes below about six and a half times the sectional area, of that of the vessel passing through it. This evidently points to the conclusion, that the nearer an artificial channel approaches the capacity above mentioned, or even exceeds it, the better it will serve the purpose contemplated.

All these, and other known matters bearing directly on the subject, having been duly considered, it was recommended that the plan of enlarging the present canal be adopted, and that the summit level between Lachine and Cote St. Paul, be made a mean width of 150 feet, or to a sectional area of 1,950 square feet, which is nearly double its present capacity, and about one-fifth greater than that authorized for the other canals.

From Cote St. Paul Lock, downward to Wellington Street Bridge, the water-way was recommended to be increased to a mean width of 200 feet, and such other arrangements made as will be herein subsequently described.

On the question of the enlarged scale of navigation having been decided, attention was at once given to the lower entrance of the canal, and to increasing the basin, and wharfage accommodation on the Montreal reach, or that between the second and third locks above the harbor.

In the annual reports of the Department since the year 1852, these subjects have been from time to time brought under the notice of the Government, and in the year mentioned (1852), about fifty acres of land were purchased from the Seminary of St. Sulpice, for basins and other purposes connected with that part of the canal.

In the year following it was found that the great number of lockages, that took place at the lower entrance—some of them for vessels that passed up through the two lower locks, and returned without using the canals—led to such delays and complaints, that the question of a new entrance channel, was frequently urged by those taking an interest in the matter, and occasionally referred to in the reports of the Department.

• It was then as now generally believed, that the place best adapted for that purpose, lies south of the present entrance, and on the line of the old canal; in fact, there is no other place where a new entrance could be made to connect properly with the harbor, unless a channel was excavated to it.

In addition to these general remarks, it may be stated that there are to be throughout a new tier of locks, each 270 feet long between the gates and 45 feet wide: they and all other permanent structures on the line, from a short distance below Wellington Street Bridge to Lachine, are to be arranged for a depth of 14 feet water on lock sills, and from the former place to the outlet in Montreal Harbor, the locks, and permanent structures are to be placed at a depth, corresponding to 18 feet on the lock sills.

All the works connected with the enlargement of the canal, between Montreal, and Lachine,—bridges and gates excepted,—are divided into eleven different Sections, each of which will be referred to in its order.

Tenders for Sections Nos. 1, and 2; were received on the 8th July 1873: for Section No. 3, on the 5th October 1875; for Sections Nos. 9, and 10, on the 20th January 1876; and for Sections Nos. 4, 5, 6, 7, 8, and 11, tenders were received on 21st March 1876, and the respective works were, in each case, shortly afterwards awarded.

SECTION No. 1,—includes the construction of a new entrance, from 80 to 100 feet in width, carried out to a depth of 19 feet at low water, on the south-east, or river side of the existing channel,—the construction of two lift locks, placed so as to have eighteen feet of water on the sills; between which, is to be a basin 540 feet long, and 260 feet wide,—the wings of the upper Lock are to be extended, to form abutments for a swing-bridge, to carry the traffic of Mill Street Road; and a regulating weir, with a race-way from it, is to be built in connection with the south-east dock-wall above the bridge.

The entrance lock is so placed, that its upper gate quoins are nearly opposite those, of the present outlet lock, where the centre lines of the old and new channels are 180 feet apart, and at the head of the second lock the respective lines are 100 feet apart.

The piers at the outlet are to be of crib-work, on which will be a continuous superstructure of pine timber, all well secured and filled with ballast.

All the masonry of the locks, dock walls, bridge abutments, and weir, consists of an approved class of limestone, prepared for the respective places, and laid throughout in hydraulic cement mortar.

The upper or second lock occupies part of the site of the combined locks, which formed the outlet of the old or original canal, the north wall of which, when it could be avoided has been left undisturbed, and where necessary it has been under-pinned, and otherwise secured.

On excavating the foundation, to the depth required for the floor timbers of this lock, the bottom was found to be of so soft a nature, it was deemed advisable to remove the entire surface material, for a depth of from six to fifteen inches, and substitute for

it a stratum of concrete, on which to place the foundation timbers. Concrete was also used in the sheet-pile trenches, and between the timbers in the chamber, and at both ends of the lock.

All the works connected with the foundation of this lock are completed, and the walls carried up to the height of twenty one feet over the floor, or fully two-thirds of the quantity of masonry in it has been laid.

The excavation of the pit for the lower lock is not yet completed; but about one-half of the foundation at the upper end of it is in place, and the walls, for fully one-third of the length of the structure, have been carried up to the height of five feet over the floor. This, together with the quantity of stone piled at other places, it is believed, will fully secure the timber that has been laid.

At the level for the foundation timbers of this lock, the material was found to be of a soft, gravelly nature, rendering its removal necessary, to admit, so far as the work has progressed, of forming a bearing surface of concrete, of from nine to sixteen inches. It is, however, from the indications, quite probable that the depth of concrete will have to be increased, as the lower end of the lock is approached. It will also be necessary to use concrete in the sheet-pile trenches, and between the floor timbers.

A large quantity of stone has been quarried, and prepared, but the service ground being limited, the stone is only delivered when it can be placed in the works.

The dock-walls of the basin, between the two locks, are nearly completed; and the excavation is so far advanced, that there only remains to be removed a small quantity, which is required for part of the filling in rear of the masonry.

It may here be remarked, that the time for proceeding with the works, on the lower part of this section is limited, by the high water of the river, to about four or five months in the year. It may, further be stated that considerable difficulty has been experienced in unwatering them, although much less than might reasonably have been expected, from the information conveyed through the medium of the specifications distributed to the contractors before tendering for the works.

SECTION No. 2,—embraces all the works connected with excavating or dredging basin No. 2, to an uniform depth of four feet below the top of the lower mitre-sill of the third lock, from a point near Wellington Street Bridge, to the head of the second lock—enlarging the basin by the removal of a triangular point of land, that projected north of the road between Wellington Street Bridge, and the weir at *Tates' Dock*—the deepening of the latter space, and forming a channel 19 feet deep from the head of the second lock, to the south-west side of Wellington Basin. The whole of the material excavated to be disposed of, without passing through any of the canal locks, or in any way obstructing or interfering with the passage of vessels.

It also includes the formation of Wellington Basin, the construction of dock walls of masonry laid in hydraulic cement mortar, on three of its sides, a sewer for drainage, wharves, and such other works as may be required.

This basin is 1,250 feet long, 225 feet wide, and has a depth of 19 feet. This portion of the work is in an advanced state, as only a few pieces of coping and part of the inner ends of the respective walls are required to complete the masonry—the whole area is of the full depth; the sewer is built, and materials for the wharves have been delivered, and part of them laid. The deepening of No. 2 Basin is not in so forward a state, as there yet remains fully two-fifths of the excavation still to be done.

Before leaving this part of the line, it may be stated that the time is close at hand, when a decision will have to be arrived at, as to how the wharf property adjoining Wellington Basin is to be divided, and whether the lots are to be disposed of by sale or lease.

SECTION No. 3,—Is fully three-quarters of a mile in length, its lower boundary being at a place a short distance below Wellington Street Bridge, and its upper end at a point 700 feet above St. Gabriel Lock.

It embraces the enlargement of the channel to a main width of 200 feet between the dock walls, and to an uniform depth of 13 feet—building piers, and abutments for a new swing-bridge at Wellington Street—the construction of a new lift lock on the north side of the present one at St. Gabriel, with the upper wings of it extended to form the seat, and abutments of a swing-bridge; building a regulating weir on the north side of the new lock; taking down 13 feet or more of the walls of the present lock, and using new face-stone throughout when rebuilding it; constructing a retaining wall on the south side from the lower end of the section upward, and at such places on the north side as may be required, &c., &c.

At the lower end of this section, the increased width given to the channel is taken off the south side, and is continued upward on such a line, that opposite St. Gabriel Basin the cutting for the enlargement is wholly on the north side of the canal, thence upward to near the end of the section, the widening is continued on that side.

Spoil ground for material taken from the excavation is, in a great measure, confined to two places, one of which is on the south side, near the lower end of the section and is of limited extent; the other is on the south side, near the middle of the section. Under these circumstances the best that could be done, was to provide in the specifications for raising the spoil banks to the height of about twelve feet, unless the contractor could make favorable arrangements, for raising the ground of adjoining proprietors.

It may be stated, that in addition to taking down the upper 13 feet of the present lock walls, the lower north wing of the lock must be wholly removed down to the foundation, or at least as much of it as projects beyond the rear line of the side walls. This has to be done to admit of forming a water-tight connection, between the back or end of the centre retaining wall, and a wall of concrete to be carried up in rear of the north side of the lock for its entire length. The seat of this concrete wall has to be formed, immediately at the back of the old lock wall, and sunk to the full depth of the new structure, or five feet below the bottom of the present lock.

The seat of the centre retaining wall has also to be sunk to a depth, corresponding to 14 feet on the sills of the lock, and the wall carried up, as well as the rear concrete wall, and side walls of the lock, between the present time and the twenty-fifth day of April next, in order to be ready for the opening of navigation.

As the new lock is to occupy the channel leading to the present regulating weir, the latter must be closed before the pit can be laid dry. To admit of doing this a temporary weir, and race-way will be built on the south side of the canal as soon as the walls of the present lock are sufficiently advanced, to allow part of the limited space on that side to be used for that purpose.

The land in the vicinity being for the most part closely settled, there were only about $2\frac{1}{2}$ acres on the north side of the canal, below the lock, and part of the "Island" above it, that could be promised as service ground; any greater extent required, the contractor has to provide at his own expense.

The works on this section have been proceeded with at a fair rate, a large portion of the excavation has been done at the south end of it, on the south side a separate cut has been formed up as far as the width, to be removed, would admit without endangering the stability of the bank, about 750 feet of the dock wall on that side has been built, and the south abutment of Wellington Street Bridge is well advanced.

At St. Gabriel, the greater part of the lock masonry intended to be removed, has been taken down, and the works at that place in other respects are in rapid progress. The materials required for the centre retaining wall, and for the walls of the present lock, are delivered and most of the stone prepared.

Building operations will be commenced, as soon in the month of March as the weather will permit, so there is every prospect that those parts of the works necessary to be completed, will be ready in good time.

On the 28th January and the 16th March 1871, orders of the Privy Council were passed, authorizing the Grand Trunk Railway Company, under certain conditions, to build a swing-bridge, adapted to both railway, and ordinary traffic over the Lachine Canal, in line of Wellington Street, Montreal.

The bridge was to be built according to a design, then submitted by the Company, representing that the centre pier on which the fixed part of the bridge, as well as the toe of the swing were to rest, was to be of masonry; but when the work came to be executed, the pier was built of crib-work. This was permitted rather than run the risk, of retarding the opening of navigation. The Managing Director for the Company was, however, notified by a letter, dated 14th of April 1871, that they (the company) are expected to take the necessary steps as early as circumstances will permit, to carry out the plan and conditions on which the privilege of crossing the canal, was granted by the Government.

In carrying out the works connected with the enlargement of the canal, the present bridge, piers, and other works at that place must be removed.

A good opportunity will therefore be afforded, for the construction of two bridges, one for the railway crossing, and another for ordinary traffic, in case it is thought proper to follow this course ; which some people who are aware of the extent of travel on Wellington street, were of opinion should have been done in 1871 ; still it could not then have been carried out to so good advantage as now.

It is, however, probable that a decision on this point, will in some measure be influenced by the amount which the Grand Trunk Railway Company contribute towards that object, from the fact of not having in the first instance carried out the design agreed upon, and the present bridge having been already six years in use.

Securing greater basin, and wharfage accommodation, at the lower terminus of this canal, being one of the considerations connected with the enlargement, it is deemed proper to state what has been done, as well as what is proposed to be done, towards these objects.

There is now under contract, and recently constructed, basins which afford accommodation as follows :—

Between the first and second lock, under contract	600	lineal feet.
Wellington Basin, under contract	2,625	“ “
Basins on Slips Nos. 1, and 2, on north side of canal, above Wellington Crossing, recently constructed	2,960	“ “
North and south side of channel, between Wellington Street Crossing, and St. Gabriel Lock, under contract	3,600	“ “
	<u>9,785</u>	lineal feet.

Wharfage on Basins proposed to be constructed, may be approximately given as follows :—

Mill street Basin, below Wellington street (proposed)	2,700	lineal feet.
Space between Wellington, and Mill street Basins	350	“ “
Basins or Slips Nos. 3, and 4, on the north side of the Canal, above Wellington street (proposed)	2,400	“ “
	<u>5,450</u>	lineal feet.

The extent of old wharfage between the first lock and Wellington street is about 5,000 lineal feet.

This has been all the accommodation of that kind, the trade has had for the past 25 years.

There is, therefore, about twice as much additional wharfage under contract. and built within the past few years, as has hitherto been used for all purposes, and there is still about as much as the original extent proposed to be built.

SECTION No. 4, is about 3,800 feet long, its upper end being a little above the Grand Trunk Railway swing-bridge, and its lower near the head of

the "Island" above St. Gabriel lock. It includes the enlargement of the water-way to a mean width of 200 feet, and to an uniform depth of 13 feet, or to 4 feet below the top of the lower mitre sill of the present lock at Cote St. Paul—facing the inside of the banks with pitched stone, laid at right-angles to the face—the construction of piers, and abutments for two swing-bridges, and alterations to the culvert under the canal, for passing the main pipes of the Montreal Waterworks.

The land in this vicinity being for the most part private property, contractors were informed that on the lower two-thirds of the section, there would be no "spoil-ground" adjoining the canal for the material excavated in widening and deepening the channel, or bridge foundations, and as mud-scoops would not be allowed to pass the locks at either end of the reach, tenders for the excavation on the section would be received in two ways, viz. :—

1st.—On the understanding that one-third of the entire quantity of excavation on the Section, and in the foundations of the structures, can be used in making up the banks, from the lower end of the section upward, and deposited within a distance varying from thirty, to *one hundred and thirty feet* from the water-line of the enlarged canal, and on the upper one-third of the Section. The other two-thirds of the quantity to be placed at a distance, varying from *four hundred to sixteen hundred feet* from the water line of the canal, at such places as may be directed within a distance of one mile and a half along the canal, from the lower end of the section.

2nd.—On the understanding, that after the banks of the canal are made up to the width, and height required, the contractor shall find, at his own cost and expense, deposit ground for all other parts of the material excavated from the widening and deepening, and from the foundations of structures, &c., as may be required by the Department of Public Works for embankment or for other purposes.

The result of this arrangement has been so far satisfactory: all wrangling about over-haul, bad roads &c., has been avoided—the contractors get the price fixed by themselves for material deposited on canal property, and in like manner when they find the spoil ground themselves.

Contractors were also informed that the principal part of the excavation on this section will be clay; but the lower part of it is of a hard nature, and it is probable that rock may be met with before getting to the full depth; especially in the foundations for the piers, and abutments of the bridges.

The excavation for the enlargement of the channel being chiefly on the south-east side, an independent cut has been formed outside of the present towing-path, for a continuous stretch of fully 1,900 feet, and generally to the full depth specified. For fully two-thirds of this distance, the trench for the seat of the side wall has been sunk to the depth of $15\frac{1}{2}$ feet, below the surface water line of the canal—the face of the bank has been trimmed to the required angle, about 1,300 lineal feet of protection wall carried up to a mean height of eleven feet, and arrangements have been made, for the delivery of a sufficient quantity of stone during the present winter, to raise this part of the wall to the

full height. The abutments of Brewster's Bridge are carried up: stone has been delivered and prepared, and arrangements made for building the centre piers and seat piers, for the swing-bridge, before the water is again let into the canal.

About two-fifths of the entire quantity of excavation has been done, and the works generally, are progressing in a fair way.

SECTION No. 5,—is about four-fifths of a mile long, extending from a point near the Grand Trunk Railway Swing-Bridge, to opposite the lower factories at Cote St. Paul.

It embraces the widening of the channel to two hundred feet, and lowering the bottom to a depth of thirteen feet below the surface water line—building a protection wall of pitched stone along the inside face of the banks, and constructing an inverted syphon culvert, to carry the water of the River St. Pierre through under the canal.

The excavation for the enlargement, on the lower half of the section, is on the south side of the canal, and for the upper half it is on the north side.

There being comparatively little land in this vicinity belonging to the Government, contractors were, at the time of letting the works, informed that on the upper three-fourths of this section, there will be no "spoil ground" adjoining the canal, for the material excavated in widening and deepening the channel, or foundations of structures, and as mud scows cannot be allowed to pass through the lock at either end of the reach, tenders will be received in two different ways. For the form and conditions of which *vide* Section No. 4.

By the adoption of this course, contractors fix the prices at which they are, in either case, to be paid, and thereby, any misunderstanding about over-haul, and matters of that kind, is avoided.

Contractors were also informed that on this section, the principal part of the excavation in both the widening and deepening, will be clay, some of it of a hard nature; rock will, however, be found for a stretch of fully 1,000 feet at the upper end of it, at some places a little higher than the bottom line of the present canal; and, it is quite probable that, at other places rock may be met with before getting to the full depth, or, at least, a class of material composed of clay, gravel and boulder stones, firmly cemented together.

The north side of the enlarged channel, for the greater part of the upper half of this section, being considerably north of the present bank, the contractors commenced their operations there, and, by employing a large force, succeeded in forming a considerable stretch of the channel to the full depth, and making a good bank alongside of it, although part of the line was rather unfavorable for that purpose.

For nearly 1,200 feet, the seat of the side walls has been sunk to the depth of $15\frac{1}{2}$ feet, below the surface water line of the canal, the face of the bank made to the

required angle, and for the distance stated, the protection wall has been carried up to a height of ten feet. The west end of the culvert pit for the River St. Pierre, has been sunk to the full depth, the foundation timbers laid, and the whole well loaded down for the winter. A large portion of the stone required for this part of the work, has been delivered and prepared. At the lower end of the section, there has been a considerable extent of excavation done, on the south-east side of the line, and in other respects, the progress made, and general arrangements are in an advanced state. About one-third of the quantity of excavation on the section has been done.

It may here be stated, that for the facing of the banks on the whole of this reach, a class of wall has been adopted, which admits of forming wharves when required, on both sides of the channel. The inclination of the face is so little, that no vessel lying alongside, could be more than five feet from the water line, and many would not be more than half that distance.

There is a probability that for lumber and bulky articles of that kind, wharves in that vicinity may yet be found serviceable; provision has therefore been made, that when required they can be leased, to parties desirous of obtaining such accommodation. There would be little or no objection to this, so far as navigation is concerned, as it is quite probable that ere long, nearly all vessels passing through that part of the canal, will use steam tugs; consequently paths for tow-horses will cease to be a part of the system.

SECTIONS Nos. 6, & 7,—commence at a point about 700 feet below the present Lock at Côte St. Paul, and extend upward a distance of about 10,000 feet. They form one contract, which embraces the enlargement of that part of the canal, at the lower end of the Section to a mean width of 200 feet, and all the part above Côte St. Paul Lock, to a mean width of *one hundred and fifty feet*, and to a depth of *four and one-fifth feet*, below the mitre sills of the present Guard Lock at Lachine—forming an inverted syphon culvert under the canal—building piers, and abutments, for a new swing-bridge at Côte St. Paul—constructing a new lift lock, on the north-west side of the present one at that place—taking down 13 feet or more of the walls of the old lock, and using new face stone throughout when rebuilding it—building protection side walls where required, &c., &c.

On the lower one-third of the Section, the excavation for the enlargement is on the north-west side of the channel; thence upward, the increased width will be taken chiefly off the south-east side.

Contractors were informed in the specification distributed before the letting, that the principal part of the excavation on the Section will be clay, but part of it is of a hard nature: rock will, however, be found below the lock, at a height a little over the bottom line of the present canal; and at many places in the upper reach, the surface of the rock is either at, or a little below the level of the present bottom; but it generally underlies a hard class of material composed of clay, gravel, and boulder stones, firmly cemented together.

They were also informed that the material, for both the widening and deepening of the prism of the canal, as well as that to be removed from the lock pit, foundations of bridge piers, and abutments, culvert pit, &c., can all be deposited at the upper end of the Section, on the low land on the north side of the canal. But should any of the adjoining proprietors be desirous of having their land raised to an extent, that would render it more advantageous spoil ground, than that above-mentioned, part of the excavated material may be used for that purpose.

The land in the vicinity being for the most part private property, the contractors have to provide at their own cost and expense, all the service ground that may be required for the purpose of placing, and preparing materials, or for the erection of sheds, store houses, or any other buildings, or for temporary roads, or for any other purpose whatsoever.

The same remarks as used in relation to the overhauling of the present lock at St. Gabriel, and the formation of a concrete wall, and centre retaining wall, are applicable in this case, for which (see page 55).

The works on the lower part of Section No. 6, were proceeded with at a fair rate, during the summer and fall months of last year—the pit for the new lock was excavated down to the rock, or to the full depth where rock was not found, and the best of the material was used to form a bank, from the lower end of the section up to Côte St. Paul Road, a distance of about 1,400 feet.

Before making this bank, a seat for it had to be cut through black muck, and marl at some places, for a depth of from ten to twelve feet below canal bottom.

An effort was made to do part of the work on Section No. 7, by means of scoop dredges, but the operations were found less successful than anticipated, from the fact, it is alleged, that the machines employed were not sufficiently powerful, for the work which has to be done.

Since the canal was emptied in December last, the contractors have been proceeding with the work by manual labor, and it is stated that “if there is any difference at all the material is not as hard as represented by the specification, its solidity is, however, increased by the frost which extends to the depth of two feet.”

About one-third of the bottom excavation has been done on Section 6, and one fifth of Section 7, has been deepened for the width of the present bottom.

All the defective portions of the masonry, and other parts of the walls of the old lock at Côte St. Paul, necessary to be taken down, have been removed, and the works there, are in other respects in rapid progress.

The materials required for the walls of the present lock, and for the centre retaining wall, are delivered and most of the stone prepared. Derricks, and other equipments necessary for moving the stones, and laying the masonry, have been provided,

so that as soon as the weather admits of commencing building operations, this portion of the works can be proceeded with expeditiously.

SECTION No. 8,—is about 7,500 feet in length; it consists of enlarging the channel to a mean width of one hundred and fifty feet, and lowering the bottom to the depth of fully four feet and one-seventh below the top of the mitre sills of the present Guard Lock at Lachine—forming a road along the south east side—building walls at certain places, and at others facing the banks with pitched stone or a rip-rap wall.

When tenders were received parties were informed that for about 2,500 feet at the lower end of this section, the increased width would be taken off the south-east side of the channel, above this, for a short distance the widening would be done on the north side, thence upward the increased width would be taken off both sides.

Contractors were further informed, that, at the upper end of the section, there was rock $2\frac{1}{2}$ feet over surface water line, but that 1,000 feet lower down, the surface of the rock is nearly on the same level as the bottom of the present canal, and continues at that height on other parts of the section; except at places where it underlies a hard class of material, consisting of clay, gravel, and boulder stones, firmly cemented together.

Spoil-ground was stated to be chiefly on the north side of the line, and opposite the lower two-thirds of the section.

On the south-east side of the canal, all the excavation over the water has been done, and the material used chiefly in forming the berm bank and road in the rear of it.

Dredging operations were proceeded with in the latter end of September, October, and November last, but the want of proper equipment, prevented their being carried on advantageously.

Since the canal was emptied in December last, the works have progressed fairly, and arrangements have been made, for proceeding still more rapidly during the present winter, as well as with dredging next summer.

SECTION No. 9.—extends downward 6,000 feet from a point situated about 1,000 feet, below the lower wings of the present guard lock. It embraces nearly all that part of the line known as the "rock cut."

The works upon it consist, chiefly, in increasing the channel to a mean width of 150 feet, and to the depth of 4 feet, below the top of the lower mitre sill of the guard lock, forming a new towing path, and berme bank, and building walls where necessary to support the banks.

Contractors were informed that the greater portion of the material excavated, could be deposited at a distance of from 110 to 200 feet from the centre line of the canal. They were, however, requested to bear in mind that the spoil-ground, in some cases, would not be directly opposite, the place where the widening is to be done, and that the haul of the

material excavated over water surface may at places be 1,000 feet, in order to leave more convenient space, for depositing the side and bottom excavation.

Parties tendering were further informed, that all the works over the water surface on this section had to be done between the time they were awarded, and the opening of navigation in the spring of 1876.

The operations have been conducted in a manner, that showed a desire on the part of the contractors to comply with the conditions,—above mentioned; and, notwithstanding the severity of the weather, and unfavorable nature of the material (old spoil of earth and clay mixed), the greater part of the widening, down to the water surface, was completed in June last.

Removing the surface rock, and drilling ranges of holes, the full depth of the channel, along the line of the enlargement, at the respective places where widening has to be done, occupied the greater part of the summer, and fall months. Pumps, derricks, travellers, railway tracks, cars, and other equipment, have been provided for urging on the works, as expeditiously as circumstances will permit during the present winter; and the contractors seem desirous of doing all in their power to facilitate the operations.

SECTION No. 10,—is 1,400 feet in length, and is situated on the south side of the present entrance lock, and weir at Lachine. It includes all the works connected with the formation of a new channel; the construction of a new guard lock, with its upper wings extended to form abutments, for a swing bridge for public traffic; building protection walls, where required on the section.

The channel, generally, is to have a mean width of 150 feet; above the new lock it will be made to a depth of six feet; below the top of the mitre sills of the present guard lock, and the lower reach will be made to an uniform depth of four feet below the same point.

This section is a thorough cut, that produces a large amount of material, consisting of old spoil bank, and rock, all of which, except the part suitable for embankment in rear of the lock walls, and bridge abutments, is to be hauled beyond the upper end of the section, and deposited in the river on a continuous line upward, to the south of the contemplated new harbor works.

The greater part of the excavation on this section has been completed, except the rock in the bottom of the lock pit, which has still to be taken out.

From the appearance of the surface of this rock, there is every probability that a foundation of timber will have to be formed, and that instead of ordinary sheet piles, it will be necessary to use stop-water timbers let into checks, cut in the bottom for their reception.

A considerable quantity of stone has been quarried, and part of them prepared, and arrangements made for proceeding with the lock masonry as soon as the foundation is ready, next spring.

SECTION No. 11,—embraces all the work to be done for the formation of a new channel, and basin on the south-eastern or river-side of the present entrance to the canal at Lachine.

They are to be formed by means of a continuous line of pier work, about 6,200 feet in length, alongside of which a channel two hundred feet in width, is to be sunk uniformly to the depth of six feet, below the top of the mitre sills of the present guard lock.

The principal reasons for the selection of this line of entrance, for the enlarged canal, having been given in a preceding part of this report, attention will now be drawn briefly to the works only.

Contractors, previous to the "tendering" for this section, were informed by the specification, that except for a short distance at its lower end, the whole area occupied by the works upon it is in the river, and at some places strong currents must unavoidably be encountered.

They were also informed that the material to be removed, except near the bank of the river, is for the most part rock in position, arrangements were therefore to be made, for unwatering a large portion of the space, so that if possible the bulk of the excavation might be done in the usual way. To enable this to be accomplished about 3,600 lineal feet of the pier, from the bank of the river upward, is to be formed of two ranges of cribs placed six feet apart, and the space between them cleared out, secured, and filled with material of so retentive a nature as likely to prevent leakage.

From a short distance above the place mentioned the cribs will be made thirty feet wide, and be continued at that width to the lower side of the ice-breaker, that is to form the head of the pier.

The superstructure is to be carried to about the same height, as the coping of the guard lock. For 600 feet at the upper end it will be of pine timber, and at other places it is to be of stone, hand-laid, and faced on the channel side, and partly on the river side, with masonry, laid in cement mortar.

At the upper end of the double crib-work, a dam is to be built across the waterway, which is to connect with a puddle wall, supported by a line of rough crib-work, sunk along the south-easterly side of the old pier, from the place mentioned inward to the bank of the river.

Contractors were informed that the clearing of the sites of the piers, and space between them is considered an essential part of the work, which must be properly attended to in order to render the undertaking successful.

It was also stated, that it is quite likely a considerable extent of pumping power, will be required before the space within the exterior dams, or even any great extent of it, can be laid sufficiently dry, to admit of proceeding with the excavation advantageously.

This was looked upon as probable, even with good success in preventing the water entering laterally, as it might find its way "under a head" through seams, and fissures in the bottom.

It was further mentioned, that in order to make a channel 200 feet wide, and increasing it to 300 feet, opposite the upper entrance of the present canal, there are three different places where the bottom is rock, which, together with the removal of any boulders, and the deepening of such other places, as may be found necessary to obtain the full depth of six feet, below the mitre sill of the guard lock, forms a class of excavation that must be done under water.

Attention was specially invited to these matters at the time, that contractors might look carefully into them, and, with a knowledge of the facts, be enabled to determine for themselves, the value of the work to be done.

A contract for this Section, was entered into in the early part of April last; but the progress made since that time, bears a very small proportion, to the extent of what is required to be done.

The site for the dam alongside the present pier, has been cleared for a considerable distance, and the cribs on that line have been sunk for a stretch of 1,000 feet from the shore outward, and a few cribs of the outer pier are in place.

A large quantity of timber has been delivered, and part of it framed, and arrangements made for proceeding with the works, as early as the weather will permit next Spring.

It may here be stated, that full information, as to the works in progress on the Lachine Canal, was furnished by Mr. John G. Sippell, the Superintending Engineer.

Before closing this report, it is deemed proper to submit a synopsis of the estimates originally made, for the different divisions of the canal system, for twelve feet draught of water; together with the approximate amount required to increase the depth, to form a line suited to a *fourteen feet* navigation, throughout.

WELLAND CANAL:

Original estimate for a draught of 12 feet water	\$9,240,000	
Adapting canal and the different entrances, to a depth of 14 feet on the lock sills	3,000,000	
	<u> </u>	12,240,000

ST. LAWRENCE RIVER, AND CANALS:

Williamsburg Canal original estimate	2,110,000	
Cornwall do do do	2,160,000	
Beauharnois do do do	2,450,000	
Lachine do do do	5,920,347	
Deepening the bed of the river at various places	1,520,000	
	<u> </u>	14,160,347
<i>Less</i> amount, if the submerged-chain tug system is found successful, and the Locks on the Williamsburg Canals are only lengthened	1,700,347	
	<u> </u>	12,460,000
To deepen the St. Lawrence Canals, and River between them, to pass vessels drawing 14 feet water, will cost at least an additional sum of		5,500,000
		<u> </u>
		\$30,200,000

WORKS UNDER CONTRACT.

Welland Canal, estimated cost	\$7,500,000
Cornwall do do do	560,000
Lachine do do do	4,800,000
	<u> </u>
	\$12,860,000

In conclusion, it may be stated, that, from the general depression of business, and consequent abundance of labor, there is reason to believe that, at the present time, the works can be let on more advantageous terms, than they could have been done at any time within the past ten years.

I have the honor to be Sir,

Your obedient servant.

JOHN PAGE.

Chief Engineer Public Works.

APPENDIX

TO THE

CHIEF ENGINEER'S REPORT

ON THE PROGRESS OF

CANAL ENLARGEMENT

BETWEEN

LAKE ERIE AND MONTREAL.

A.

THOROLD, 6th December, 1876.

SIR,—I have the honor to submit the following report on the state of the works in my charge, on the 30th November, 1876.

These embrace the deepening and enlargement of Port Dalhousie Harbor; together with the construction of twenty sections of the new Welland Canal, stretching from Lake Ontario to Allanburgh, a distance of 12.67 miles; on which the twenty-five locks necessary to attain the level of Lake Erie are situated.

With the exception of the entrance and summit locks, the rise at which will be variable, all the rest are arranged for lifts of either 12 or 14 feet.

The mean difference of level between the lakes is computed to be 327.5 feet; and all heights are referred to a datum of ordinary surface of Lake Ontario, assumed as being represented by a plane 13.54 feet over the mitre sills of the present entrance lock at Port Dalhousie.

Of the twenty sections above referred to, sixteen are under contract, the chief items of work on them being approximately as follows:—

Masonry	325,000 cubic yards.
Earth excavation	3,500,000 do
Rock do	160,000 do
Timber	1,000,000 cubic feet.
Plank	3,500,000 Feet B. M.

Sections Nos. 8, 9, 10, 11, 15 and 16, were let in the summer of 1873; and work was begun on Section No. 15, on the 2nd of August, in that year.

Sections Nos. 2, 3, 5, 6, 7, 13 and 14, were given out in 1874; and contracts were signed for Sections Nos. 1, 4 and 12 last year.

The quantities of the principal items of work done to date, and those approximately required to complete, are as follows:—

Work done.	To be done.
Masonry..... 174,568 cubic yards.	..... 150,432 cubic yards.
Earth excavation..... 2,992,089 do	..... 507,911 do
Rock do 90,645 do	..... 69,355 do
Timber..... 753,825 cubic feet.	..... 216,175 cubic feet.
Plank..... 2,516,815 ft. B. M.	..... 983,185 feet B. M.

Value of work done and materials delivered to 30th November, 1876,
\$3,690,958 ⁵⁶/₁₀₀

Subjoined is a short description of the condition of affairs on each of the sections.

SECTION No. 1.

Considerable progress has been made in dredging the Harbor of Port Dalhousie, and the entrance channel between the piers; 222,883 cubic yards having been removed to date under the existing contract.

When the works are completed, the area of deep water inside will be doubled; forming a basin of over sixteen acres in extent, with from 16 to 17 feet at low stages of the lake.

The greater part of the excavation is in soft material, but in the entrance cemented gravel is found; and at one place on the east side of the harbor, near the Welland Company's grain elevator, the cribs forming the docking will rest on a bottom of rock for a distance of 240 feet; that material having to be blasted under water in order to obtain the required depth.

The new docking to form the approach to the entrance lock, will be about 750 feet in length on the east side, and 950 feet on the west side of the addition to the harbor. For this, 43 cribs 30' x 18', have been framed, sunk, and solidly filled with stone; and the timber for next years work has been delivered.

Six of the cribs for the extension of the east entrance pier 300 feet further into the lake, have been prepared, and the material necessary for the superstructure is on hand. This work will be pushed on early next season. The entrance lock pit is, for the most part, taken out to bottom line, 45,498 cubic yards having been removed. The coffer-dam constructed to shut out the water of the lake has been strengthened; and it is the intention to keep it pumped out during the winter. A reddish sandstone rock forms the principal part of the foundation, overlying which quicksand has been found in several places. The cutting is very heavy; over forty feet deep on the east side; and the rock referred to, slopes off rapidly on the north-west corner of the pit, where the borings show soft clay to a depth of about thirty feet below grade.

About 1,150 cubic yards of backing have been delivered for the lock, and there is a considerable amount of stone dressed in the quarries, which will shortly be hauled by rail to the section.

The upper wings of this structure will be extended across the site of "Andrew's dry dock," to form the abutments of a bridge to carry the main road from Port Dalhousie to St. Catharines over the new canal. The travel is at present diverted along the north side of the dock. In order to give free outlet to the waters of the canal during spring freshets of the twelve mile creek, a saw mill, which stood close by the west end of the present regulating weir has been removed. The extension of this weir to adopt it to the service of both the old and new channels of navigation, will not be begun until next year.

The site for the guide piers to the upper end of the entrance lock, will be in soft mud which seems to cover the whole area of the bottom of the inner basin to a considerable depth. The distance across this basin from the old dry dock to Lock No. 2 is 1650 feet. It contains an area of about 35 acres of water generally from 14 to 17 feet deep.

SECTIONS NOS. 2 AND 3.

There are four locks on these sections, and four regulating weirs ; together with other structures, amounting in all to about 42,113 cubic yards of masonry, of which 31,245 cubic yards have been laid.

Lock No. 2 is located in a high point on the west side of "May's Ravine," which is a small tributary of the valley of the Twelve Mile Creek. Here the old and new canals diverge, the latter following an entirely independent course to Marlatt's Pond, near Thorold.

The east upper wing of the lock will be connected by a stone dam (now nearly completed) with the regulating weir build in the right bank of the ravine. The central part of this dam is 184 feet long, and 36 feet 9 inches high, the bottom of the old creek at this point being so soft as to necessitate the removal of the material for considerable depth in order to obtain a safe foundation. The dam and weir together contain nearly 4,000 cubic yards of masonry.

Lock No. 2 will not be commenced until next year ; but a large amount of earth has been taken out of the pit, the excavation of which will be continued during the winter.

The cribs for the entrance piers to this lock from the inner basin have been sunk in two diverging lines, each 300 feet in length. Owing to the soft nature of the bottom previously referred to, many of them reach to a depth of from 20 to 22 feet below the present surface of the water.

As a similar depth (fourteen feet) will be established at Lock No. 2, to that fixed for the entrance lock ; the foundations will, according to your directions, be sunk two feet lower than at first intended.

Between Locks Nos 2 and 3, the reach is 1,350 feet long, and the canal is generally 165 feet wide at bottom, with a breadth of 217 feet at water line. This basin will have a surface area of about $6\frac{3}{4}$ acres ; and was readily formed by widening out the sides of the ravine, which for some distance is followed by the present location. This additional width is desirable in consequence of there being a considerable change of direction immediately to the south of Lock No. 2.

Lock No. 3 is also situated in the ravine just north of where the canal line is again crossed by the main road from Port Dalhousie to St. Catharines. On excavating the foundations for this structure, it was discovered that a large part of the area towards the south end, consisted of a bed of quicksand. This has been confined to its place by sheet pile trenches, and the whole extent of the bottom (over half an acre) was, according to your directions, covered with two feet in depth of concrete, carefully put on in layers. The lock walls are now ready to receive the coping, and the foundation appears to be perfectly solid ; not the least indication of settlement or change of any kind being observable. The upper wings have been extended to receive a swing bridge for the road referred to ; which will also cross the race-way a little to the west by a fixed structure.

This race-way is about 3000 feet in length, and is situated on the west side of the canal. It is sixty feet wide at bottom, and leaves the main line above Lock No. 5, rejoining it below Lock No. 3. Three regulating weirs are built across it, and openings are made to permit of free communication with each of the two intervening reaches. This arrangement will doubtless have the effect of avoiding cross-currents in the canal, the surplus water beyond that required for lockages being thus passed by an independent side channel.

The reach between Locks Nos. 3 and 4 is 810 feet in length, and as the canal curves somewhat to the west, the bottom width, in the centre, has been made 150 feet.

Lock No. 4 has its walls 21 feet four inches high, and material has been prepared to finish the structure early next season. The ashler of Lock No. 5 is entirely completed.

Both Locks 4 and 5 were laid up with steam cranes placed on rail tracks running on the outside of each wall. This method worked both rapidly and economically under the circumstances.

All the minor structures are completed, and 356,792 cubic yards of earth have been excavated, so that there will be probably no difficulty experienced in finishing the work on these sections next year.

Their combined length is 5,220 feet.

From the crossing of the Queenston Road, on Section No. 7, in rear of the City of St. Catharines, the new canal is always more or less in embankment; and as the natural slope is to the north-east, the drainage of the country, for a considerable area, is intercepted.

A large ditch has therefore been excavated on the west side of the canal to convey the surface water to the first convenient point where it may be disposed of. This occurs in the vicinity of Lock No. 3, on Section No. 2, where a branch of "May's Ravine" crosses the main road a short distance to the west. The back ditch terminates in this branch, which is connected with the wide reach or basin between Locks Nos. 2 and 3, previously described.

SECTION No. 4.

There is no lock or weir masonry on this Section, the only structures being a railway swing bridge and a single track road bridge.

The earth excavation is nearly completed; 161,596 cubic yards having been taken out to date. A portion of this is for the formation of 3,250 feet in length of canal, and the remainder is that required for the Welland Railway diversion.

This line has to be changed to the east, the new track being 5,944 feet between the points of divergence; the work being necessary in order to raise the grade, so as to cross over the new canal where the latter is in ten feet embankment; the present track being nearly on a level with the surface of the ground.

This change will be made without interruption to the traffic of the railway, and the redistribution of grade on the line as now located will not, it is believed, increase the cost of working, whilst the general arrangements are such as to render the approaches to the bridge as safe as possible, there being a considerable length of level on both sides of the canal crossing.

The bridge at this point has not yet been begun. The road bridge at the crossing of Lake Avenue extension, St. Catharines, is however, well advanced, 716 cubic yards of masonry having been laid there this fall. The works embraced on this contract can easily be completed next season.

The quantities of earth work on this Section, and also on Sections Nos. 5 and 6, will be considerably increased beyond those originally contemplated, in consequence of the surface soil being sand in some cases for a depth of from three to four feet. This had of course to be thrown to spoil, and suitable material borrowed in its stead for the formation of the canal banks.

SECTION No. 5.

On this Section there are two locks, two regulating weirs, &c.

The reach between Locks Nos. 5 and 6, is 4,400 feet in length, and that between Nos. 6 and 7, is 1,500 feet.

The surplus water is passed by the two latter Locks, through an opening in the east bank of the canal, a short distance above No. 7. This opening communicates directly with a small reservoir, about 1½ acres area, in the north bank of which there is a regulating weir, discharging into another side reservoir at a lower level, its surface being

over four acres in extent. From this the water is conveyed by a race-way of 900 feet long, having a bottom width of 60 feet, into the main canal about 250 feet north of Lock No. 6.

The excavation of this Section is now well advanced, 170,840 cubic yards having been taken out to date.

The walls of Lock No. 6 are 10 feet 6 inches high and No. 7 is nearly completed, about one third of the coping being in place. The extension of Geneva street, St. Catharines, will cross the canal on the upper wings of Lock No. 6, the masonry for which has not, however yet been commenced. This street will also have to be carried over the race-way to the east, (previously described) by a fixed structure.

Two regulating weirs are finished, and one towing-path bridge. Under existing arrangements the work embraced in present contract can be entirely completed next year. The amount of masonry of all kinds laid to date is 12,842 cubic yards.

The length of the Section is 3,200 feet.

SECTION No. 6.

This Section is 7,000 feet long. The work consists almost entirely of earth excavation, and is nearly completed, 256,897 cubic yards having been taken out to date.

There is however a double track road bridge at the crossing of Niagara street, St. Catharines: 685 cubic yards of the masonry of this being built. A towing path bridge to be constructed near the south end of the Section has not yet been commenced.

The work can be easily finished next season.

SECTION No. 7.

The low gravel ridge, running east from St. Catharines to Queenston, traverses the line of the new canal towards the south end of this Section. The main road, which follows this ridge, will be carried across by a double track swing bridge, the abutments and piers of which are built.

The foundations of Lock No. 8 are laid, two courses of masonry being in place, and flooded to protect the work from the effects of the frost.

Lock No. 9 is partially coped: and one of the regulating weirs is finished, the other having been recently begun. The earth excavation is well advanced; 183,969 cubic yards having been taken out to date. It will, however, require a vigorous effort on the part of the contractors to complete the works of this Section next year.

The masonry laid is 10,960 cubic yards, length of Section 3,075 feet.

Locks No.'s 7 and 8 are 7400 feet apart; but the length of reach between No.'s 8 and 9 is only about 700 feet. To the north of the Queenston Road on the east side of the canal, a reservoir 4.21 acres in extent has been constructed. This is connected with another, the surface of which is on the same level as that of the reach between Locks No.'s 8 and 9, and having an area of 7.43 acres. In its north bank a regulating weir has been built, discharging into a raceway 750 feet in length, with a bottom width of 60 feet. This terminates in an opening in the east bank of the canal, through which the surplus water will re-enter a short distance below Lock No. 8.

SECTIONS NOS. 8 AND 9.

The work on these sections is generally so far advanced, that the completion of the present contract can be easily accomplished next season. 316,074 cubic yards of earth have been taken out; but little now remaining to be done. The ashlar of Locks Nos. 10, 11, and 12, is finished, except the copings, a part only of which has been laid. Three regulating weirs and two towing path bridges are built; and a towing path bridge on Section No. 8 has also been commenced. The materials for the fourth, or remaining one, are all on the ground.

The distance between Locks Nos. 9 and 10 is 2,250 feet. The surplus water is passed around the latter structure on its west side. The opening for that purpose above the lock, communicates with a side reservoir of about $2\frac{1}{2}$ acres in extent. In its north bank the regulating weir is built, from whence a raceway, 60 feet wide and 900 feet long, leads into the main canal below. Between this raceway, and the rear of the lock, about $1\frac{1}{2}$ acres of ground have been levelled off and will, from its position, probably prove useful in connection with the future service of the canal.

All the locks from No. 4 to No. 11, inclusive, are on the same right line, the length of which is 4.4 miles. Between locks Nos. 11 and 12 the canal centre deflects 20 degrees to the west and is again straight for about 4,500 feet. On this tangent locks Nos. 12, 13, 14, 15, and 16, are situated.

The distance between locks Nos. 10 and 11 is 3,500 feet. Towards the south end of the reach the canal crosses the ten mile creek, by a double arched culvert of eight feet spans. The stream is liable to heavy freshets in the spring, but the structure which has now been in use for two seasons, has been found amply sufficient for the greatest required discharge.

Between this culvert and lock No. 11, the road from Thorold to Homer is met. Preparations are being made to build a single track bridge at this crossing, some dressed stone having been delivered for that purpose. A quantity of material is also hauled for the extension of the lock wings.

From lock No. 11, southwards to No. 24, the average distance between the structures is about 650 feet, and the canal is flanked by a succession of side reservoirs, some of which have a considerable area of surface. The pond below lock No. 11, and connected with the long reach to the north of it, is about $4\frac{1}{2}$ acres in extent. That alongside the reach between Nos. 11 and 12 covers over $6\frac{1}{2}$ acres of ground.

The aggregate length of these sections is 6,338 feet. Masonry laid to date 26,058.7 cubic yards.

SECTION No. 10.

The first lock on this section will carry the line between the IX and X concessions of Grantham Township across its lower wings, which have been extended for this purpose. The approach of this bridge from the west is in heavy embankment, through which there is an opening, to connect the upper and lower portions of the reservoir, alongside the reach between locks Nos. 12 and 13. This pond has an aggregate surface area of nearly 9 acres. There is also a culvert of dry masonry through this bank to the west of the reservoir, to pass the water of a small tributary of the Ten Mile Creek, which discharges into the pond near lock No. 11, on Section 9. The side reservoir for Nos. 13 and 14 has an area of 7 acres. Lock No. 13 and extension are ready to receive the coping; and the walls of No. 14 are eighteen feet high. All the minor structures are completed and 135,885 cubic yards of earthwork taken out.

A large amount of material is prepared and delivered for finishing the locks, so that there is every probability this section will be ready next season.

Length of section, 2,107 feet. Total amount of masonry laid to date, 16,811 cubic yards.

SECTION No. 11.

On this section the earth work is well advanced; 167,670 cubic yards having been excavated.

Lock No. 15 is partly coped; and the walls of No. 16 are eight feet high. One regulating weir and two towing-path bridges are completed, and a quantity of material delivered on the ground.

Towards the south end of the section, the road from Thorold to St. Davids is passed under the new canal, the levels of the ground being favorable for the purpose. The arched culvert is 14 feet wide, 14 feet high, and 331 feet long. It contains 3,507

cubic yards of masonry, and will, it is believed, prove a satisfactory means of transit in such position. The drainage of the structure is led into an adjoining creek; the approaches are at an easy grade, and the roadways are thirty feet wide.

The side reservoir for the reach, locks 15 and 16, is 7.6 acres in extent. A regulating weir is, as usual, built in the north bank which separates it from the adjoining pond, of 8.6 acres in extent. In the south west corner a raceway 60 feet wide enters, and, through this channel, a connection is made with the side basin to the south. The raceway will cross the St. David's road about 500 feet west of the culvert and connect with a regulating weir to be built in the present railway bank.

Length on section, 2,250 feet. Total amount of masonry laid to date 15,376.54 cubic yards. The work can doubtless be finished next season.

SECTION No. 12.

This is an important section, embracing some heavy work, both in connection with the proposed diversion of the line of the Great Western Railway, and the construction of 2115 feet in length of the new canal.

It was at first intended to pass the railway over the canal by a swing bridge across the lower wings of Lock No. 17. Strong objections having, however, been urged against this course, a plan shewing the line in the position now located, was submitted by the railway Company, and, having met with your approval, the work as it is being carried out, was sanctioned.

By this, the railway will diverge from its existing position at a point about 3700 feet east of the present intersection with the canal line; and curving to the south, will pass under the latter at the reach between locks 18 and 19. The new track then sweeps around to the north and will rejoin the existing line where it traverses the Ten Mile Creek:—the total length of the diversion being 7482 feet.

This is generally in heavy cutting, the quantity of excavation being approximately estimated at 200,000 cubic yards; a portion of the east end being in stratified rock.

Where the railway passes under the canal, a culvert or tunnel is being built. This structure is located on a curve of 1443 feet radius, the grade through it being level. The central portion is in 35 feet cutting. The total length will be 713 feet, with a width of 16 feet at rail level. The centre of the soffit of the arch will be 18 feet clear of the rails. The culvert, when completed, will contain about 11,500 cubic yards of first-class masonry; and the side walls for nearly the entire length of the arch (665 feet) are now four courses high above the footings.

The east half of the diversion will run along the face of the mountain, and incline towards the culvert at the rate of about 42 feet per mile. Through the culvert the grade will as before stated be level; and westwards to the Ten Mile Creek it will be about 21 feet to the mile.

The inclination of the present track is 38.54 feet per mile where it crosses the canal centre. The new road bed will be 24 feet wide at sub-grade in cuttings, the slopes of which will be $1\frac{1}{2}$ to 1, with a thorough system of drainage along the sides, face and top; your specification also requires them to be sodded if necessary; and generally the work called for in connection with the diversion is of the best description of the respective classes; 91,325 cubic yards have been excavated in the railway cuttings, where it is intended to continue work throughout the winter, the material having to be deposited in the valley of the Ten Mile Creek. To enable the diversion to be completed at this point the arched culvert which carries the water of this stream under the existing railway bank has been lengthened about 40 feet.

Of the canal excavation, estimated at 130,000 cubic yards, 52,061 cubic yards have been taken out, and the earthwork of the section cannot be continued much further until the railway diversion is fully completed. It thus appears that of this work about 44 per cent is finished to date.

Lock No. 17 has not yet been commenced. The walls of Lock No. 18, are 8 feet

6 inches high and have been flooded to protect them from frost. A large amount of dressed stone is on the ground, but none of the minor structures connected with the canal have, so far, been begun. The total amount of masonry to be built is 32,300 cubic yards, and that laid to date is 6,401 cubic yards.

From the above statements it is quite evident that the most vigorous efforts must be made if it is expected to finish the works of this section next year.

The side reservoir for the reach between 16—17, has a surface area of 8.5 acres and that for Locks 17—18 is about 7.7 acres in extent.

SECTION 13.

Of the 205,000 cubic yards of earthwork estimated for this section, 147,654 have been taken out to date.

The masonry of Lock No. 19 is two feet high and the foundations are flooded to protect them from frost. Lock No. 20 is 14 feet high and the bottoms of both the regulating weirs are in and secured, by having a couple of courses of masonry laid on each of them. One of the towing-path bridges is completed; the other is not yet commenced.

The side reservoir for the reach between Locks 18—19 has an area of about five acres—that for the reach above 19 is 5.1 acres in extent.

The works of this section have been pushed on well of late, so that under present arrangements, the whole will probably be completed next year.

Masonry laid to date 5786 cubic yards. Length of section 2000 feet

SECTION No. 14.

This section is nearly completed, Locks No.'s 21—22 are coped and one weir and three towing-path bridges built. There is only one regulating weir remaining to be done, the stone for which is prepared.

181,867 cubic yards of excavation have been taken out, leaving only about 10,000 cubic yards to complete this part of the work.

The side reservoirs for the reaches between Locks 20—21 and 21—22 have areas respectively of 6.4 and 5.4 acres.

The total amount of masonry laid to date is 17,809.64 cubic yards. Length of section 1,775 feet.

SECTION No. 15.

This section embraces some heavy work through the ravine behind Thorold.

The new canal, between Locks Nos. 22—23 deflects considerably to the east, and enters the valley cut out by the head waters of the Ten Mile Creek, the banks of which are there over 40 feet high.

The centre of this ravine was, at the time operations commenced in August, 1873, occupied by the Welland Railway; it being clearly the best location by which that line could attain the level of the high land to the south; although, in order to effect this, a grade of over 83 feet to the mile had to be adopted for a distance of over two miles. The railway through the ravine was shifted 120 feet to the westward of its old position, so as to make room for the construction of the canal, the centre line of which is now the same as that of the former track.

To excavate a road bed for the new position entailed a considerable amount of heavy cutting in the left bank of the ravine, the material of which proved much harder than was anticipated, duallin, or other preparations of nitro-glycerine having been extensively used in order to effect its removal.

It also becomes necessary to provide for the passage of the water of the creek, which is liable to heavy spring freshets. The bottom of the upper part of the ravine being clay, it was decided to form a channel entirely of masonry for about half a mile in

length in rear of the west bank of the canal, and alongside the railway in its new position. This channel has been in use for two years, and has proved amply sufficient for the intended purpose.

The canal, where it passes through the ravine, has a bottom width of 110 feet, and its sides are lined with heavy masonry retaining walls. Those from the west side from the foot of lock No. 24 to the head of No. 22 will be laid in cement mortar. On the opposite side of the canal they will be built of dry rubble with openings through them to secure a free communication between the raceway, and the reaches of the canal.

This raceway is in heavy cutting, and is intended to pass the surplus water from above the head of lock No. 24, along the rightbank of the ravine, in rear of the east retaining wall of the canal.

It is about 2,300 feet long with a bottom width of 58 feet; and, although the reach between locks Nos. 23 and 24 is the only one along the mountain slope which is not in direct communication with a side reservoir, it is evident that the surface area of the raceway will in a measure answer this purpose, being about $1\frac{1}{2}$ acres in extent, whilst, in the position described, with its side openings, it will doubtless have the effect of obliterating such cross currents as would be created were the whole feed water for the lower reaches abruptly turned through the prism of the canal. A portion only of the water passing through this raceway will be admitted into the canal in the reach between locks Nos. 22 and 23. The channel will be sub-divided at that point, and such proportion of the surplus water as may be deemed advisable will be passed in rear of lock No. 22, by a conduit 30 feet wide, excavated in the rock, which shall terminate in one of the side reservoirs on the reach between locks Nos. 21 and 22. That for the reach Nos. 22 and 23 has an area of 2.2 acres.

A considerable amount of rock (51,190 cubic yards) has been excavated; this part of the work being now well advanced. Of earth 247,237 cubic yards are taken out, leaving about 25,000 cubic yards yet to be removed. Lock No. 23 is 16 feet high, and No. 24 is, together with the extension of its upper wings, to receive the bridge at Hoover's Road, ready for coping. This road must also be carried over the railway to the east, and the raceway to the west of the new canal. It is intended to accommodate the travel, to and from the town of Thorold, on the eastern side.

Neither of the regulating weirs on this section have as yet been commenced, and there is a considerable amount of retaining wall yet to be built; so that a large amount of work has hitherto been done there remains much to complete; and this will necessitate a vigorous effort on behalf of those in charge of the contract to finish the whole next season.

Total amount of masonry laid to date, 19,391 cubic yards. Length of section, 2,300 feet.

SECTION No. 16.

The work on this section consists chiefly of heavy excavation, the new canal being here carried through the ridge which divides the valley of the Ten Mile Creek from that of the Beaver Dams which is a tributary of the Twelve Mile. This cutting corresponds to what is known as the "Little Deep Cut" on the present canal—both passing through the same elevation.

The amounts estimated for the section are 325,000 cubic yards of earth and 80,000 cubic yards of rock. Up to date 269,808 cubic yards of earth, and 34,680 cubic yards of rock have been removed.

The head waters of the Ten Mile Creek are passed under the canal on this section by a double (six feet) arched culvert, 234 feet long. This structure is connected with the south end of the masonry channel referred on Section 15.

From the south end of Section No. 15, towards the dividing ridge, the canal is excavated in clay and has retaining walls or dry masonry on each side, of which 9,553 cubic yards have been built to date.

About 100 feet north of the crossing of the stone road to Clifton some higher layers of the limestone rock, forming part of the summit of the Niagara formation, are

encountered. These strata, as usual, dip rapidly to the south, the deepest cutting (18.34 feet) being at the northern ledge, whence the rock surface runs out to grade near the line between Sections 16 and 17. The rock at its highest point is 326.5 feet over datum, and the ground level is 343 feet over the same plane; the deepest cut being about 35 feet.

A portion of the rock lately excavated on this section has been removed by a steam shovel, the material having been previously shaken up by dynamite or ordinary blasting powder. This system does not, however, appear to work expeditiously, and a much more rapid rate of progress must be established in order to ensure the rock being wholly taken out before the end of next year.

A temporary bridge has been erected over this cutting, in line of the Clifton stone road above referred, for the accommodation of the public travel, until this highway can be connected with Hoover's crossing by a new track to be built on the east side of the canal.

The south end of the section terminates in Marlatt's Pond, where there is a curve of 1,000 feet radius and the canal will have a bottom width of 175 feet.

The length of the Section is 3,500 feet.

The amount of masonry laid, up to the 30th November 1876, 10,484.60 cubic yards.

From the end of the entrance piers at Port Dalhousie to the line between Sections 16 and 17, at Marlatt's Pond, near Thorold, the distance, measured along the centre line of the new canal, is very nearly 9.5 miles. Of this 88.3 per cent is straight and 11.7 per cent curved.

From the foregoing description it will be seen that along the short reaches between Locks Nos. 11 and 24, where the ascent to the mountain is made: the canal is flanked by a chain of extensive side ponds, communicating with each other by regulating weirs constructed in their dividing banks; and with the navigable channel by a series of bridged openings, formed on its western towing path.

These reservoirs have an aggregate area of about ninety acres; the surface of the canal itself, in the distance referred to containing about 30 acres, or in all, say one hundred and twenty acres. The average area connected with each of these thirteen reaches is therefore about $9\frac{1}{4}$ acres: equivalent to a length of 2,645 feet of canal with a breadth at water line of 152 feet.

This arrangement will obviously facilitate the working of the canal, by avoiding rapid currents and rendering the supply to all parts continuous and easy of control.

The item of masonry being by far the most important one connected with the works, I shall now briefly describe the arrangements made, so far, for the delivery of stone, and the localities from whence it has been obtained.

The first quarry used was on the west side of the old canal; and from this place, about two miles distant, the ashlar of Lock No. 24 was hauled:

The rock is a compact limestone, dark blue in color, and generally forming excellent material for the required purpose. This together with a small excavation a short distance further to the west, on Ball's farm; and is what is known as Winton's Quarry, in Pelham Township, are the only points where regularly stratified stone in layers of suitable thickness was, to any extent, procured in this vicinity. Upon getting back from the face, however, the layers seemed to merge into each other and became bed bound, whilst the stripping increased to a formidable extent. These drawbacks, coupled with the very heavy clay roads over which the stone had to be transported, and the extra cost of cutting entailed by its extreme hardness, induced, at an early date, the abandonment of the quarries on the west side, from which probably not more than 10,000 cubic yards have been delivered; the remainder of the 175,000 cubic yards already built, having been almost wholly procured from points in the face of the Niagara escarpment, between Thorold and Queenston.

A short distance east of St. Davids, there is a number of quarries close together, from which the stone has been principally obtained for Sections Nos. 2, 3, 5, 7, 8 and 9, and part of Nos. 10 and 11. This is an excellent greyish limestone, strong and durable, and although somewhat tough, it is much easier dressed than the blue stone above referred to.

These quarries are connected by rail with the Great Western Railway at the St. David's siding, from whence the material is conveyed along the main line to Merritton. It then passes along the Welland Railway, and is conducted to the various sections by branch tracks constructed for that purpose. This mode of transportation is by far the most satisfactory, as it is both cheap and ensures the regular delivery of the stone as required. It also renders the contractors in a measure independent of ordinary labor, the value of which fluctuates considerably, and is sometimes scarcely to be obtained at all. It is quite probable, judging from what has been already experienced, that if the vast masses of material which have so far been delivered on the works had to be carried in ordinary waggons, the roads would long ere this have been so cut up as to be practically impassable.

The quarries from which the face stone for Sections Nos. 14, 15, and 16 were principally obtained was known as "Hutts." This material was conveyed to the works by a tramway operated principally by gravity. Other quarries have been also opened up in the vicinity from which Sections Nos. 12, 13, &c., are supplied.

In almost all these quarries the best rock is found in a bed of from 10 to 12 feet in thickness, and this has, in nearly every case, been proved liable to change suddenly into broken up masses of useless material, so that the cost of obtaining face stone is very variable. Generally speaking, however, the quarries are now well developed, so that the same degree of uncertainty, as to where good stone is to be found, will not be experienced so much in the future as formerly.

The most important point connected with the quarrying of stone in this locality—as far as the progress of the works is concerned—is their liability to crack from the action of frost if taken out before the middle of May or after the early part of November. A large number of pieces of dressed ashlar has been lost already this winter from that cause; and it has now become evident that for six months in the year no stone can be judiciously quarried at those places from which the great bulk of that material has hitherto been obtained.

562,917 bushels of cement have been delivered on the works to date. Nearly all of this has been manufactured from the stratum of hydraulic limestone which is traversed by the line of the new canal in the ravine behind Thorold.

The sand used, so far, has been brought principally either from Lake Erie or Lake Ontario, and is of excellent quality. Some very good sand for backing is, however, found in the ridge referred to in the description of Section No. 7.

No serious interruption to the steady progress of the work since its commencement has taken place, except the strike of stone-cutters which lasted for some time in the spring of this year; and but few accidents have occurred, the only special noteworthy incident of that kind being the death of Mr. John Brown, Contractor for Sections Nos. 14, 15 and 16, who was killed by being thrown from his buggy whilst engaged in superintending his work, on the 27th of last June.

As directed by you, several trial lines have been run between Marlatt's Pond and the north end of the Deep Cut, near Allanburg, a distance of over three miles, with a view of ascertaining the relative cost and advisability of constructing an entirely new line of canal between these points, or enlarging the existing channel.

The plans, quantities, and accompanying explanatory statements in reference to this proposed location on Sections Nos. 17, 18, 19, and 20, having been forwarded to you a short time since. The whole matter is doubtless now under consideration, so that I presume it will not be necessary for me to refer further to the subject at present.

Accompanying this report are two schedules showing in detail the various items and values of work done on each section to date. These have been carefully prepared, and will, I trust, prove useful for future reference.

I have the honor to be, sir, your obedient servant,

(Signed,)

THOMAS MONRO,

Civil Engineer.

JOHN PAGE, Esq.,

Chief Engineer Public Works, Ottawa.

WELLAND CANAL. SECTIONS 1-16. QUANTITIES OF WORK, &C., TO 30TH NOVEMBER, 1876.

No. of Sections.	Clearing and Grubbing.	Earth Excavation on Section.	Earth Excavation in Foundations.	Rock Excavation on Section.	Rock Excavation in Foundations.	Dredging.	Put in.	Timber in Foundations.	Timber in M. S. Platforms.	Oak in Mitre Sills.	Crib Timber.	Plank in Foundations and Sheet Piles.	Wrought Iron in Lock Foundations.	Wrought Iron in Crib-work.	Pressed Spike.	Lock Masonry and Bridge Extension.	Weir and Dam Masonry.	Coursed in Cement.	Coursed Dry.	Arched Culvert, and Tunnel Masonry.	Stone Behind Walls.	Stone Filling of Cribs.	Road Bridge Masonry.	Fence Built.	Total Masonry of all kinds.
No. 1		18,493	27,005		1,428	222,883					164,596			40,471								12,620			
" 2	6-00	93,652	65,492				4,190	23,624	1,736	648	150,849	169,745	6,428	37,108	8,031	8,756	4,601-50	1,101	1113						14,571-50
" 3	12-17	141,642	56,006				5,974	37,362	3,480	1,310		257,064	11,151		14,737	14,230	1,469	750	225						16,674
" 4	7-87	161,353	243				96	1,463				11,057											716	348	716
" 5		124,458	42,382				11,562	36,141	3,472	1,296		233,492	10,765		8,490	11,000	1,468	374							12,842
" 6		256,897					11,284	1,016				9,000			156								685		685
" 7	5-40	138,565	45,404				5,909	34,152	3,472	1,296		212,218	11,014		1,278	8,320	865	918	112				745		10,960
" 8	12-00	164,904	24,128				5,926	23,907	1,920	655		159,323	6,596		9,475	7,165	625	143		1,324-50					9,257-50
" 9	0-50	95,941	31,101				6,103	43,177		1,310		261,798	11,295		14,460	14,642	1,250	909-20							16,801-20
" 10	13-74	92,885	46,000				5,790	40,735	3,486	1,310		262,374	11,634		8,825	14,167	1,250	965	430		32				16,812
" 11	10-00	138,766	28,904				6,408	34,580	3,480	1,310		218,500	11,220		7,832	10,204	745-70	727-50	192	3,507-30	485				15,376-54
" 12	3-59	118,325	26,421	20			1,422	16,938	1,736	655		86,171	4,340		515	2,557		30		3,814				176	6,401
" 13	1-50	117,154	30,500				1,568	38,661	3,536	1,310		195,170	10,925		975	4,780	512	494							5,786
" 14		139,856	38,684	954	2,373		6,270	32,822	3,480	1,310		245,953	10,229		13,025	15,967	732	1,005	105-60						17,809-69
" 15		215,403	18,834	40,608	10,582		3,770	24,025	3,691	1,310		178,579	8,868		905	13,592		775	5,024			1,197-50		105	19,391
" 16		267,030	2,778	34,680			936	3,568				16,371						81	9,553-60	850	1,896			64	10,484-60
	72-77	2,285,324	483,882	76,262	14,383	222,883	77,208	391,171	33,489	13,720	315,445	2,516,815	114,465	77,579	88,704	125,380	13,518-20	8,272-70	15,755-20	9,495-80	2,413	13,817-50	2,146	693	174,567-98

APPROXIMATE LIST OF MASONRY.

Lock Masonry.....	200,000	Cubic Yards.
Weir Masonry.....	17,500	"
Arched Culverts and Tunnels.	17,500	"
Road Bridges.....	3,200	"
Railway Bridge.....	1,000	"
Coursed in Cement.....	52,500*	"
Dry Masonry.....	33,345	"
		325,045 Sections 1 to 16.

*Of this about 30,000 Cubic Yards in rubble extension of lock walls.

WELLAND CANAL—Sections No. 1 to 16—Value of Work Done and Materials Delivered to 30th November, 1876.

No. of Section.	Clearing and Grubbing.	Earth on Section.	Earth in Foundations.	Rock Excavation on Section.	Rock Excavation in Foundations.	Dredging.	Fuddles.	Concrete.	Timber in Foundations.	Timber in M. S. Plat forns.	Oak in Mitre Sills.	Crib Timber.	Plank in Foundations and Sheet Piles.	Wrought Iron in Locks.	Wrought Iron in Crib-work.	Pressed Spike.	Lock Masonry and Br. Extensions.	Weir and Dam Masonry.	Arched Culverts and Tunnels.	Road Bridges.	Coursed in Cement.	Coursed Dry.	Stons behind Walls, &c.	Stone Filling of Oriba.	Fence Built.	Unwatering, and sundry items.	Totals, (including Materials.)	Materials Delivered.	
No 1		\$ 5,547.90	\$10,802.00		\$4,284.00	\$75,992.30						\$61,204.20			\$4,833.52									\$15,306.50		{ \$3,883.50 3,000.00 4,000.00	\$216,088.62	\$34,211.70	
" 2	\$ 600.00	28,095.60	22,922.20				\$3,352.00	\$14,140.00	\$11,812.00	\$1,041.60	\$ 388.80	50,142.15	\$5,198.10	\$ 899.92	5,133.12	\$ 722.69	{ \$76,875.00 12,560.00 149,415.00	{ 16,135.00 29,880.00 14,690.00			\$9,909.00	791.00						321,856.78	27,196.50
" 3	1217.00	39,659.76	20,162.16				4,779.20	5,430.00	\$20,549.10	2,088.00	982.50		8,664.31	1,561.14		1,326.33					6,750.00	1,350.00				4,000.00	295,724.50	13,100.00	
" 4	1,967.50	{ 28,040.98 7,456.68	72.90				76.80		512.05				176.91							\$ 6,444.00				\$1,218.00			50,215.82	4,250.00	
" 5		43,560.30	15,681.34				11,562.00	20,478.00	10,842.30	1,388.80	1,166.40		7,574.60	1,399.45		679.20	143,000.00	16,148.00			3,366.00						290,646.39	13,800.00	
" 6		{ 61,655.28 2,490.12					3,385.20		355.60				234.00			14.04				11,645.00								81,464.24	1,685.00
" 7	810.00	41,569.50	15,891.40				2,363.60	5,990.00	20,491.20	2,256.80	907.20		7,577.20	1,321.68		89.46	99,840.00	7,352.50		13,037.50	9,180.00	672.00					238,080.04	8,730.00	
" 8	2,700.00	41,226.00	7,238.40				2,370.40	1,954.50	14,344.20	1,152.00	393.00		6,372.92	659.60		568.50	85,980.00	6,250.00	\$13,245.00		1,144.00							185,598.52	3,450.00
" 9	112.50	23,025.84	9,330.30				2,441.20	2,994.00	25,906.20		786.00		10,471.92	1,129.50		867.60	175,704.00	12,500.00			7,273.60					Both Sections— \$6,000.00	278,542.66		
" 10	3,091.50	29,723.20	16,100.00				7,237.50	13,557.50	11,813.15	1,220.10	1,179.00		7,446.32	1,512.42		749.25	{ 146,004.00 28,000.00	17,500.00			8,685.00	2,365.00	112.00				316,300.94	20,005.00	
" 11	2,250.00	41,629.80	10,116.40				3,204.00	3,508.00	12,103.00	1,914.00	786.00		8,970.00	1,570.80		704.88	101,529.80	6,711.30	52,609.50		4,729.01	960.00	727.50		1,000.00		264,373.99	9,350.00	
" 12	646.20	{ 7,830.00 27,854.12	{ 7,768.91 435.20	21.00			{ 479.00 211.00	{ 1,957.50 247.50	{ 5,541.20 387.10	607.60	262.00		{ 1,719.48 90.11	480.60		{ 22.50 8.40	27,871.30		{ 39,900.00 3,579.60		297.00			440.00			164,800.32	36,122.00	
" 13	180.00	44,518.52	12,810.00				1,568.00	6,375.00	12,758.13	1,308.32	1,179.00		6,271.62	1,420.25		87.75	50,190.00	5,120.00			4,446.00						167,602.59	19,370.00	
" 14		48,949.60	19,342.00	954.00	2,373.00		3,752.00	10,548.72	16,411.00	2,088.00	786.00		6,308.13	1,636.64		1,302.50	160,468.75	6,807.60			7,035.00	633.60				1,000.00	292,051.54	1,645.00	
" 15		75,391.05	7,535.20	40,608.00	15,873.00		2,262.00	16,816.00	7,207.50	2,214.60	786.00		7,287.39	1,330.20		90.50	{ 99,192.40 7,252.00				4,650.00	20,096.00	2,395.00		420.00	{ 1,452.50 2,000.00	330,959.34	14,100.00	
" 16		77,438.70	972.30	37,801.20			982.00		1,427.20				491.13								708.75	60,474.29	2,180.40		255.00	{ 850.00 500.00	193,202.27		
\$	\$13,574.70	\$675,662.95	\$177,180.71	\$79,384.20	\$22,530.00	\$75,992.30	\$50,057.00	\$105,996.72	\$172,460.93	\$17,279.82	\$9,601.90	\$111,346.35	\$84,854.14	\$14,922.20	\$10,061.64	\$7,233.70	\$1,363,882.25	\$139,094.40	\$118,454.60	\$31,126.50	\$68,173.36	\$87,341.89	\$5,414.90	\$15,306.50	\$2,333.00	\$24,686.00	\$3,690,958.56	\$207,015.20	

St. CATHARINES, 8th December, 1876.

(Signed) THOMAS MONRO.

B.

WELLAND, December 7th, 1876.

SIR,—In accordance with instructions contained in your letter of November 21st, and previous and subsequent telegrams, I beg to report as follows upon the condition of the works of enlargement on the southern division of the Welland Canal.

I have endeavored as directed, to avoid repetition of what is already in print, in connection with the works under my charge, and should the report appear bare, please accept this in explanation.

Commencing at the north end of the southern division, near Allanburgh, the "Deep Cut" (sections 21 & 22) comes first in order.

Work was commenced on this contract in October, 1873, and has been continued without interruption during the working seasons.

The removal of the material above the level of the towing-path is nearly completed and below the towing-path the work is three-quarters done.

A back ditch has been formed on the west side of the canal, from end to end of the "Deep Cut."

The actual quantities of work performed and materials delivered on the different sections, will be found in the accompanying tabular statement.

The removal of the large mass of material, necessary to give the slopes above the level of the towing path, an inclination of $2\frac{1}{2}$ to 1, has so far had the desired effect of preventing the slides which formerly occurred.

In addition to this, since the weight of material has been removed, the surface of the water in the canal, has on several occasions and for weeks at a time, been down to the level of Lake Erie, without causing any movement of the banks.

Satisfactory, however, as these facts are, lightening the banks cannot be accepted as having secured the permanency of the "Deep Cut" until the full depth required has been excavated, and the bulk of the material still to be removed under the present contract, lies in the bottom, where it may possibly be acting as an invert, to support the sides.

Some precaution against wash is desirable on the long flat slopes which form the sides of the "Deep Cut," and considering how flat these slopes are ($2\frac{1}{2}$ to 1) the experiment of sowing grass seed which failed some years ago on the slopes, might now succeed if done at the right season, after harrowing the surface and applying a good dressing of plaster.

A portion of the slope which was neatly dressed the season before last is now worn into numerous and deep furrows, the material from which has been washed into the canal.

A small portion of the expenditure required to remove one year's wash from the bed of the canal, would give the experiment of seeding the slopes a fair trial, and if successful, might be carried out over the entire "Deep Cut" slopes at a comparatively trifling cost.

The death of Mr. John Brown, the contractor for sections 21 & 22, which occurred on the 29th of June last, did not cause any stoppage of the works, and the system which he laid down for working these sections, is being regularly carried out by those now in charge.

SECTION 23.

Mr. John Carroll the contractor for this section, commenced work in April 1876.

The material above water level has been removed, with the exception of some trimming in different places, and two dredges and derricks have been engaged during the summer, removing the material below water level.

The bulk of material dredged between stations 8 and 26 has been placed on the west bank of the canal by means of the ordinary box derricks, and the remainder of the dredged material has been conveyed in scows to clam shell derricks, one on the north side of the channel leading to the Port Robinson Lock, and the other on the east bank of the canal, at the south end of the section.

The material taken to the clam shell derrick first mentioned, is stiff clay, carried on deck scows, and put to spoil so as to form a bank round the south side of the pond, behind which soft material can be spoiled.

The soft material from the bottom of the canal has been taken in box scows to the clam shell derrick at the south end of the section, and there put to spoil where the natural surface is low and the ground solid.

On the west side of the canal, between stations 18 and 28, a back ditch has been formed.

For 1,500 feet at the south end of the section, on the west side of the canal, the towing path which runs through the backwater has been formed of dry material "borrowed" from the adjoining field, and hauled into embankment when the water was low this season.

The material which has been hauled into this embankment is not included in the quantities in the accompanying table, having come from outside the slope stakes of the canal excavation proper.

The contractor will however reap the benefit of this outlay, in the facilities which it will give him for disposing of the dredged material from the south half of the contract, the excavation from the prism of the canal so far having come nearly altogether from the north half.

The delivery and preparation of materials for the combined guard lock and swing bridge on this section has been carried on actively during the summer, and up to the date of notice being given that the summit level would not be unwatered this season.

The timber work for the platform, recess and gates, has been framed and put together on the bank to make sure of everything being in readiness, and to admit of the different parts being correctly marked before piled under cover until building commences.

The Queenston quarries have supplied the greater part of the face stone, a small quantity of face stone and backing having been brought from the Bay of Quinte.

The remainder of the backing which was quarried early in the season has been supplied from Queenston, and the rock cutting near Thorold, arrangements having been made with the Great Western and Welland Railways to deliver the stone at the Port Robinson Station of the Welland Railway, from which point it has been teamed to the works, a quarter of a mile distant.

Sand and stone for concrete have been brought in scows from Port Colborne and Thorold, the sand carefully screened and roofed over, and satisfactory arrangements made for a steady supply of cement mortar.

A quantity of timber and plank for the dam has been brought on the ground, also a traveller and four derricks, and a steam engine for working the traveller.

The face stone for the pivot pier, bridge seat piers and abutments, up to within two courses of the coping, was ready to go into the work when operations were discontinued.

The fever so general last summer was particularly severe in the neighborhood of Port Robinson, and was attributed by many to the turning up of so much clay on the canal works.

This may have been the cause, but I am more inclined to ascribe it to the larger area of swampy land, covered with decaying vegetable matter, which the low water exposed.

Two properties taken for canal enlargement on this section are still unsettled for. They lie on the west side of the canal, between the swing bridge and the entrance to the old canal, and are owned by A. Brownson and M. Donahoe.

SECTION 24.

Mr. C. F. Dunbar, the contractor for this section, commenced work in August, 1875. Operations were discontinued at the close of navigation, were resumed in the following spring, and have been continued without interruption to date.

The bulk of the material above water level, has been removed with scrapers, and below water level more than a third of the excavation has been removed and put to spoil on the east bank adjoining by means of a dredge and box derrick.

The embankment for the towing path has been formed across the pond near the south end of the section, and the space behind the towing path will next season be available as dumping ground.

Where the towing path crosses the pond at the north end of the contract, the seat of the embankment has been dredged over to remove any objectionable material, and put the bottom in proper shape to receive the embankment.

SECTION 25.

Messrs. Ferguson, Mitchell & Symmes, contractors for this section, commenced work in August, 1875, and have since worked uninterruptedly; except during the period of closed navigation.

The greater part of the material above water level has been removed, and below water level the excavation is half completed.

Two dredges and derricks were working on this contract until the beginning of October, when a third dredge and derrick were brought upon the work. They have been working southwards from the north end of the section, and have now reached the Bugar Bridge.

Preparations for the new swing bridge on the line of the Quaker Road were commenced in the autumn of last year, and stone got out west of Port Colborne, was hauled to the canal bank and scowed from that point to Section 25 this summer.

Another quarry was opened this season not far from the reservoir of St. Catherine's water works, and the stone from it was hauled to the canal bank, near Marlatt's bridge, and scowed from there to the work.

A force of stone cutters ranging from 10 to 20 were employed on this contract until notice was given that the summit level would not be unwatered this winter. Since then the delivery of stone has continued, but no cutting has been done.

My proposal to do away with the Bugar Bridge being approved of, provided satisfactory arrangements could be made about land in the neighborhood, I communicated with the Reeve of Thorold Township after the land required for the enlargement in the neighborhood of Bugar Bridge had been purchased, and a by-law was passed by the Township Council, and ratified by the County Council, authorizing the sale to the Government of the road allowance on the east side of the canal, between the Bugar and Quaker bridges, and of that portion of the road allowance, between Lots 229 and 238 from the western boundary of the Departmental lands, down to the river Welland.

The closing of these roads does away with the necessity of rebuilding the Bugar bridge, thereby improving the navigation, and effecting a considerable reduction in cost of work.

SECTION 26.

Mr. John Carroll, the contractor for this section, commenced work in September last, and has had a large force of scraper teams employed, whenever the weather permitted.

The material above water level on the west side of the canal has been removed with the exception of a portion of the south end of the section, where the contractor has not yet been put in possession of the land, and on the east side of the canal the greater part of the material above water has also been shifted.

Advantage was taken of the low state of the water in September and October, and twenty-five thousand yards of material from below the assumed water level was removed with scrapers.

From the south end of section 26 to the north end of section 29, a distance of 10,538 feet, the works for the enlargement not yet under contract may be briefly described as follows: A supplementary stone aqueduct, a new lock into the Welland River, the removal of the present lock and two swing bridges, and the construction of two new swing bridges. The removal of the culvert under the canal at Welland; the continuation of the covered drain on the east side of the canal, to an outlet at the Welland River; the construction of slope-walls in the neighborhood of the other structures; and the excavation of the necessary earthwork on the west side of the canal.

These are the principal works required by the plan last submitted for this portion of the enlargement.

I have not included the construction of a permanent bridge for the Canada Southern Railway, as the expense of that structure when built is, I understand, to be borne by the Railway Company.

SECTION 29.

Messrs. John Ferguson & Co., contractors. Work was commenced on this section in September, 1873, and has been carried on since then, during the working seasons, without interruption:

One, two, and sometimes three dredges and derricks have been engaged on this section.

The material, with the exception of the last three feet in depth, has been put to spoil on the west bank of the canal.

The three feet in the bottom just mentioned, has been removed in scows to a clam shell derrick on the north bank of the feeder, a short distance above the entrance to the old canal, and put to spoil on the adjoining low ground.

A back ditch has been formed for the entire length of the section, on the west side of the canal.

This contract is now completed, and the final estimate is in course of preparation.

SECTION 30.

Messrs. John Ferguson & Co., contractors. Work was commenced on this section in August, 1873, and has been continued without interruption except during the winter seasons.

The material above water has been removed, a back ditch has been formed the entire length of the section on the west side of the canal, and the material below water level has been removed down to within two feet of the bottom.

It is proposed to carry this bottom material to spoil, in the same manner as described in the last section.

The contractors are looking anxiously for a move on the part of the Great Western Railway Company, towards carrying out the enlargement of their bridge which here crossed the canal.

Until this bridge is rebuilt, or adapted to the requirements of the enlarged canal, the contract for this section cannot be completed.

SECTIONS 31 AND 32.

Mr. John Brown, contractor. Work was commenced on this contract in August, 1873, and the dredging was continued without interruption through the winter of 1873-4, and until January, 1875, when the severe frost, put a stop to the work.

Operations were resumed in April 1875, and continued to the end of the year when the work was closed, until the opening of the navigation in April 1876, and has been uninterrupted to date.

The material above water has been removed, and the dredging also, down to within a varying depth of two to four feet of the bottom, except for a short distance at the north end of section 31, and near the south end of section 32, where the full depth has been obtained.

This bottom material is now being removed in scows to a clam shell derrick on the west bank of the canal and put to spoil in rear of the existing spoil bank.

A back ditch has also been formed from end to end of the contract on the west side of the canal.

The removal of Lyons Creek culvert which is situated on section 31, is not included in the present contract.

When this culvert is rebuilt, to suit the increased depth of water, it will be desirable to increase the size, which at certain seasons is insufficient.

From the south end of section 32 to the north end of section 36, the distance is 12,685 feet, on which the works for the enlargement are not yet under contract.

If the line of the present canal is followed, there will be an aggregate length of 6,900 feet of rock cutting to be enlarged, one railway and two canal swing bridges to be rebuilt, a supply weir and a quantity of slope wall to be built, and the works in connection with the double guard lock which the location of that structure will determine.

SECTION 36.

Mr. C. F. Dunbar, Contractor. Work was commenced on this contract in August 1875, and has been continued without interruption, except during the winter season.

In the autumn of 1875, the new docking at the south end of the basin was partly put in, a portion of the old east pier was removed, a dredge and scows were engaged in deepening the basin and entrance, where the material was capable of being dredged, and a drill scow with two steam drills, commenced the removal of the rock under water, working outside when the weather was calm, and near the entrance to the Lock when rough.

Nitro-Glycerine the explosive used, shattered the rock sufficiently to admit of its being dredged and carried away in ordinary pocket scows to the dumping ground east of Port Colborne harbor.

This season a new drill scow has been built at Port Colborne, and during the day both drill scows have been working, and the new one in the night also.

From the north end of the section to the Ferry recess, the deepening of the basin is about half completed, including the removal of all the rock near the entrance to the Lock; except some points which are not yet down to the required depth.

Those parts of the basin where dredging has been done, are as a rule down to bottom, and in front of the elevator the required depth has been reached.

From the Ferry recess southwards for two hundred feet, very little has been removed from between the piers, thence southward to the end of the east pier, the entire distance has been dredged over, bottom being made in some places, and not reached by a foot or more in others.

Rock crops out in the bottom, between the points last mentioned, and for three hundred and fifty feet of this distance a cut, averaging forty feet in width has been made through the rock on the west side of the channel, and taken down to bottom.

At two hundred feet south from the point of the east pier the rock is again met with, and from this point southwards, for a distance of one hundred and thirty feet, a cut of an average width of fifty feet, and generally down to bottom has been excavated through the rock on the west side of the channel.

The excavation in the rock commences again about fifty feet north of the range light, and extends southwards six hundred feet, for which distance the cut ranging in width from forty to one hundred feet, and of the required depth, has been made on the west side of the channel.

The winter of 1875-76 was so unfavorable for getting out timber that when work commenced this season, the supply of materials was not what could have been desired. Later in the season the supply improved, and warranted the commencement of the extension of the west pier, the first crib of which was sunk August 28th, and the last November 9th—the number of cribs being sixteen. The extension from end to end resting on the rock, the superstructure was commenced as soon as the cribs had been exposed to some rough weather, and is now nearly completed, the work being still in progress.

The beacon to mark the point of the reef, was successfully sunk into position on the 16th of September, and has since been worked upon whenever the weather permitted, the structure being now up to a height of twelve feet above water.

The superstructure of the docking has been finished across the south end of the basin.

The 1st and 2nd detached blocks of pier work, each 120 x 30 feet, have been completed, and two cribs of the 3rd detached block were sunk at date of last measurement.

A good supply of timber is now on the ground, and should the weather permit, the work will be continued throughout the winter.

On the 30th of October last, an explosion of Nitro-Glycerine occurred, at an isolated crib to the east of Port Colborne harbor, which had been built by the contractor as a small intermediate magazine.

By this explosion a man named Colbert King, (incorrectly called John King in my report dated Oct. 30, 1876), whose duty it was to carry Nitro-Glycerine to the drills lost his life, being literally blown to atoms. The cause of the explosion can only be conjectured.

Windows were broken in Port Colborne and the plaster of some houses near the Lake shore was badly shaken by the concussion, but beyond this and the shattering of the crib, I have not heard of any damage to property.

A crib to replace the shattered one has been sunk to the east of the harbor, but at a greater distance from the shore than the former one, and the contractor has taken additional precautions to guard against accidents in the future.

The present contract provides for the removal of a portion of the superstructure of the west pier, but does not fix the limit.

The superstructure is much damaged in places, especially in the neighborhood of the lighthouses, and if allowed to remain in its present condition much longer will be liable to be carried away by a heavy gale with high water.

I would recommend its removal throughout, and should this be determined upon, the contractor should have notice given him in time to arrange for the timber this winter.

I have not referred to the existing or required lighthouses, as I understand they are not under the control of the Department of Public Works.

The entire surveys, plans and descriptions of the lands taken for canal enlargement, on the ten miles under contract on the southern division, have been made by myself and assistants, without any additional staff, and have involved an amount of work that could only be accomplished by unusually long hours.

The quantities in the accompanying table are taken from the Progress Estimates for November, which were not out of hand until the morning of the 5th inst.

I have the honor to be, Sir,

Your obedient servant,

(Signed,)

W. G. THOMPSON,

Resident Engineer Southern Division

Welland Canal Enlargement.

JOHN PAGE, Esq.,

Chief Engineer P. W. Dept., Ottawa.

C.

PRESCOTT, 26th Dec. 1876.

JOHN PAGE, Esq.,

Chief Engineer, Dept. Public Works,

Ottawa :

SIR,—In obedience to your instructions of the 22nd inst. I have the honor to report progress during the past season in the surveys and examinations of the Galops Rapids, made for the purpose of procuring accurate data, to enable you to decide upon the nature and extent of improvements necessary to render the passage through these rapids available for the contemplated enlarged scale of navigation.

With reference to the Chain Vessel stationed at the Galops, during the three months ending November 22nd. Inasmuch as our experimental operations are fully described in my report of December 9th ; I need only refer generally to her in connection with the proposed improvements.

The accompanying chart of the Galops, dated December 16th, will serve to explain the position of existing channels and shoals, the proposed new channel, (tinted red) and also the line of chain traversed by the chain vessel. The soundings are expressed in feet and inches, and are reduced to the zero point of the water gauge, established at the Galops in 1872, which point is the level of 9 feet above the upper mitre sill of Lock 27.

The outlines of shoals represent a depth of fourteen feet at low water, *i. e.*, the relative level of five feet below the sill of Lock 27.

I will now submit, briefly, the result of my examinations, together with an estimate of the quantities of material to be removed in order to obtain the channel projected upon the chart.

These quantities are for widths of 200 feet, and 300 feet, and for depths at low water of 14 feet and 16 feet respectively.

The Galops Rapids commence at the traverse under "Flat Rock shoal," about 7 miles below Prescott, and extend $1\frac{1}{2}$ miles down stream or to foot of Galops island.

They are caused by an extensive ledge of very hard limestone rock, which forming the bed of the channels, underlies all the islands and extends across the whole river [here 7,800 feet in width measuring on line of Lower Bar, and the south-west point of Galops island.] Of this distance, the island which divides the river into two channels, occupies the central space of 5,000 feet.

The north or main channel [boundary line] 1,100 feet, and the south or American 1,700 feet.

The latter is blocked by numerous shoals below the Rapids, and is not a navigable channel for vessels.

The north is the main navigable channel, but it also is barred in the rapid by the ledge of rock above mentioned, and further obstructed below the traverse by Adam's island, which divides it into two channels the "North" and the "Gut."

The latter although deep, is too narrow and the bends too sharp for large vessels and is considered altogether unfit for the navigation contemplated.

The boundary line between Canada and the United States, runs through the "Gut" to the main channel, therefore the proposed improvements will lie partly in American waters.

The Lower Bar in from 6' to 12' water, is the most formidable obstruction in the rapids, it extends across the main channel, from the canal bank at McLaughlin's Point to Capstan Point on Galops island. Its surface forming the bed of the river is solid rock

dipping quickly downstream, but generally uniform across, excepting where masses of rock, apparently dislodged from their natural beds [as in the case of the "Chute" and the "Cave,"] or where, in the intermediate spaces, boulders which have been swept by the current over the shallow and smooth bed of rock above, have accumulated.

When these obstacles are encountered by the undulatory, but smooth and rapid current, running over the upper edge of the Bar, and known as the Pitch, the water becomes broken and turbulent, producing strong eddies and cross currents below.

This description applies only in low and ordinary summer water; in high water the Pitch is almost drowned out by the back water under the Bar, and scarcely any white water is visible.

The eddies and currents below the Pitch vary in strength and extent with the different stages of the river, whilst above they remain almost unchanged.

The "Chute" and the "Cave", so called, are well known and constant Breakers in the Pitch, marking the north and south passages across the Lower Bar.

The usual course of vessels descending the main channel above the Pitch, is to run nearly parallel with the canal bank, entering the swells on the Lower Bar, between it and the "Chute", thence bearing away sharply south through the rough water to beyond mid-channel, avoiding the extensive rocky shoal, which covers fully one-third of the bed of the river for a distance of $\frac{1}{4}$ mile below the Bar.

In running the "Gut" channel, vessels when abreast of the Guard Lock, meet the current setting south, which carries them through the deepest and smoothest water of the Pitch, between the Cave and Capstan Point, and after crossing the Bar, by bearing away north with the current, deep water will be found leading to the main channel, abreast of the "Magnet" shoal, at the foot of the Galops island.

That part of the Gut channel described above, from the bend abreast of the Guard Lock, across the Lower Bar, forms the eastern half of the proposed new channel.

The main channel of the "Chute" although difficult to approach, owing to cross-currents, and hazardous to run at night, has always been, and is still regarded by pilots as deeper and more direct, and having fewer obstructions in it than that by the Cave. I have found that such is not the case, the existing "Cave" channel leads straight across the Bar, the prevailing currents are favorable and the depth of water is at least eighteen inches greater than in the main channel.

The Lower Bar, as stated in a former report, "is practically the sill of the river above the Cornwall Canal, and limits the draft of water of all downward bound vessels."

For this reason and because too much importance cannot be attached to the formation of a channel through it, to enable the class of vessels contemplated in the proposed canal enlargement to take advantage of the strong current of the river in making their downward trips,—I have spared no effort to obtain correct information relating to the Galops rapids, and now, if not beyond my province, beg to recommend for improvement the channel projected on the chart, and for the following reasons:

It possesses the advantage of being perfectly straight throughout, crossing the Bars and shoals where they are narrowest.

It can easily be defined by range marks and lights on shore, and its navigation thereby rendered perfectly safe by night as well as by day.

It is accessible from all channels, above and below the rapids.

And except immediately at its upper entrance it lies south of, and out of the way of rafts, when controlled by steam tugs.

It presents the best line for ascending the rapids, should the Chain Tug System of Towage be adopted.

The direction of the prevailing current is generally favorable, and it is believed, that when the North and Island Shoals are removed, it will draw straight through the Channel. The closing of the "Gut" channel would also greatly improve the navigation, both at the "Traverse," and below Adam's Island, and would undoubtedly facilitate of blasting operations from the Chain Vessel.

Above and below the Bars, and between them and the intermediate shoals, deep

depressions exist in the bed of the river, into which the débris may be raked, or swept by the force of the current; and in view of its being straight, it is believed, that a width of 200 feet, is ample for the largest class of Propellers.

I will now advert to the Chain Vessel, which furnished with steam drills, is designed to aid in opening a channel through the rapids.

She arrived at the head of the Galops Channel, on the 23rd August, and was at once placed on the line of chain previously prepared for her, by defining it, and by building berths, or moorings, at either end.

The upper berth is situated in the eddy at the foot of Adam's Island, and the lower, in Rolling Bay, a distance of about 4,000 feet below.

The chain was laid on the 24th August, as nearly as practicable on the line, but has been constantly shifted and improved upon during the season; the upper anchorage, however, remains as at first determined upon, and now at the close of our operations, the present position of the chain, seems perfectly adapted for future work upon the "Lower Bar," the "Island," and South Shoals, on all of which the chain vessel has, at various times, been stationed, and has been able to use her drills with effect.

To enable her to work on the North Shoal, and Upper Bar, the chain will have to be re-laid: this, however, is regarded as a work of little difficulty, as compared with the existing line; and should the Chain Tug system be adopted, the permanent anchorage required for it on the north shore, above Boulton's Pt., would be available for drilling operations in the proposed channel. On the 18th November, after a final trial of the drills on the Lower Bar, the Vessel ran down on her chain to Rolling Bay, dropping the lower end in the eddy under Tripod Point, and on the 22nd November she was towed to her winter quarters at Prescott.

With certain alterations to the chain vessel, made by her crew during the working season, it was found quite practicable to anchor her in 15' or 16' of water, in the strongest current at the Pitch, and to use the steam drills effectively, also to direct and control her movements in the rapids, when anchored only by the head and assisted by the steam tender alongside.

The following is a description of the proposed new channel, to which is appended a detailed statement of quantities of rock excavation.

The extreme length of channel, from the deep water above, to that below the Bars, is 3,900 feet, and the aggregate length of shoals to be worked over, between those points, about 1,800 feet.

Commencing in the deep water below Flat Rock, and proceeding downwards, the first obstruction encountered is a ledge of rock called the Upper Bar, which extends across the main channel, from the pier-head of the Canal to the foot of Adam's Island. The current over it is about seven miles an hour.

Its general level is six feet below the sill of Lock 27—i. e., there is, in low water, a depth of 15 feet on it, but in mid-channel and at other points, the ledge is elevated from three to four feet above its general level, which would have to be removed.

The operations with the Chain Vessel at this point, and also at the North Shoal, next below, would be subject to frequent interruptions by the passage of vessels. This is also the only practicable route for rafts, which, when passing, (unless towed by steamers) nearly block up the channel.

The "North" shoal lies about 1,300 feet below the Upper Bar, and abreast of the Guard Lock; it is of rock, and extends across the main channel from the Canal bank, facing the Upper Bar, and is the cause of the current, which sweeps the north shore of Adam's Island, dividing and setting strongly south to Capstan Point, and north towards the Chute.

The point of this shoal seems to be the limit of the eddy below Adam's Island. The least depth of water on it is 10 feet 3 inches, or relatively 1 foot 3 inches below the sill.

It is feared that drilling operations here will be very difficult, owing to the strong eddy and opposing current.

Next in order is the South or Caledonia Shoal, lying 150 feet south of the point of North Shoal—its northern edge, merely skirts the southern limits of the proposed channel.

South Shoal lies in front of the "Gut" Channel, and together with the North Shoal, is doubtless the cause of the strong eddy below the Island. A dam across the Gut would destroy this eddy, and greatly facilitate the operations of the Chain Vessel.

The "Island" Shoal is 600 feet below North Shoal, and overlaps the deep water between it and South Shoal. A strong current, both from the "Main" and Gut Channels, sets south over it.

Like the other shoals, it is of solid rock. A sounding of 9 feet 9 inches was obtained at one point on it, but its general surface has a depth of 12 feet over it, and is 3 feet below the sill of Lock 27. Owing to the steady current across this shoal, drilling operations will not be difficult.

The "Lower Bar," 750 feet below the Island Shoal is a ledge of rock extending from the Canal bank to Capstan Point.

Here the current in the Pitch exceeds 10 miles per hour.

The edge of the North Channel is distinctly marked by a large breaker, called the "Chute," on the rock immediately above which, the depth of water is only 6 feet, and north of it, in the Channel, 10 feet,

In the southern channel, or that near Capstan Point, the deep water is marked on the north side by a succession of smooth, heavy swells, the first of which is known as the "Cave," on the northern edge of which, a depth of 7 feet 6 inches was found, whilst south, between it and Capstan Point, the least depth was 11 feet 6 inches.

The space between the "Chute" and the "Cave" is shallow, varying from 7 feet to 9 feet, below which the Bar is covered here and there with boulders.

On the bar the water is turbulent in low stages of the river, and although drilling operations with the chain vessel have succeeded here, they are attended with much difficulty and danger, owing to the swiftness of the current both above and below the Pitch, particularly above.

When navigation through the Gut is stopped, (as was the case last season,) no interruption from vessels or rafts passing downwards need be feared, either here or on the Island or South Shoals: and as only passenger steamers ever ascend the rapids, they might doubtless be compelled to use the Galops Canal during the progress of the improvements.

Approximate Estimate of Quantities of Material to be removed to open the straight channel, as projected on the Chart.

Name of Shoal.	Depth of Channel. 14' at low water.		Depth of Channel. 16' at low water.		
	Width of Channel. 200'		Width of Channel. 300'		
	Cub. yds.	Cub. yds.	Cub. yds.	Cub. yds.	
Upper Bar	1,573	2,426	3,146	4,853	Rock.
North & South, or Caledonia Shoal...	359	3,443	724	6,316	"
Island Shoal.....	4,578	4,702	10,364	11,051	"
Lower Bar.....	6,612	12,478	15,452	25,595	"
	13,122	23,049	29,686	47,815	

ABSTRACT.

Excavation in channel	200 feet wide	14 feet deep	....	13,122 cubic yards rock:
"	"	300 "	14 "	.... 23,049 do.
"	"	200 "	16 "	.... 29,686 do.
"	"	300 "	16 "	.... 47,815 do.

[NOTE:—It has been considered proper in the above estimate of quantities, to allow for the excavation being generally carried below the level specified, it being impossible, under the circumstances, to carry on this work with the same accuracy as on shore.]

In opening out a channel through the Rapids, allowance must be made for the difficulties with which the work will be attended, owing to its novel character—the interruptions caused by navigation to all operations in the Main Channel—danger in boarding the Chain Vessel in the current—delay from accidents &c., &c.

I have the honor to be, Sir,

Your obedient servant,

(Signed)

TOM. S. RUBIDGE.

No. 6.)

ARTICLES OF AGREEMENT

BETWEEN the Water Commissioners for the City of Ottawa and Her Majesty Queen Victoria represented by the Minister of Public Works of Canada, to supply Water to the Parliament and Departmental Buildings, Workshops, &c., and Post Office, &c., Ottawa, and Rideau Hall

[In accordance with the recommendation of the Joint Committee on Printing the above Articles of Agreement are not printed.]

REPORT

ON THE

STATE OF THE MILITIA

OF THE

DOMINION OF CANADA

FOR THE YEAR 1876.

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY COMMAND OF
HIS EXCELLENCY THE GOVERNOR GENERAL.



OTTAWA :

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.
1877.

DEPARTMENT OF MILITIA AND DEFENCE,

OTTAWA, February, 1877.

The undersigned has the honor to forward to Your Excellency the accompanying Report relating to the Militia of the Dominion of Canada for 1876, which is respectfully submitted for Your Excellency's consideration.

W. B. VAIL,

Minister of Militia and Defence.

His Excellency

The Governor General,
Ottawa.

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ANNUAL REPORT

ON THE

STATE OF THE MILITIA

FOR

1876.

HEAD QUARTERS,

OTTAWA, January 1st, 1877.

The Honorable

The Minister of Militia and Defence, &c., &c., &c.

SIR,—I have the honor to present the Militia Report for the past year. In the various Military District Reports will be found the details relating specially to each. I shall refrain from recapitulating them, to avoid repetition.

The reduction of the parliamentary vote from over one million to 650,000 dollars has of necessity not only diminished the number of men trained during the past season, but has also reduced the number of days' drill. Whereas last year we were able to train 29,000 men and to form brigade camps, this year we could only train 23,000 men, at battalion and company head quarters. In order to limit the number to be called out, to fit the amount of money available, it was found necessary to decide by ballot, and, though no other mode presented itself to make selection without favor to any corps, yet I am afraid it has been attended with some dissatisfaction to those who were unfortunately obliged to be omitted.

It is to be hoped that if possible this year the usual vote may be resumed, in order that the whole of the Active Militia of the Dominion may be trained for the same period as formerly.

In consequence of the various corps being permitted to go through their drill at times selected by themselves, for the convenience of the officers and men, I was unfortunately able to see but few of them. I did, however, inspect some of the

Infantry Corps and Batteries of Artillery; amongst the former, four very fine battalions in Montreal: the Prince of Wales' Rifles, the Victoria Rifles, the 5th Royal Fusileers and 6th Fusileers, which quite come up to the highest standard that could be expected from corps so short a time under arms. I had an opportunity also of inspecting the 19th Battalion at St. Catharines, the Governor General's Foot Guards at Ottawa, and the Stadacona Rifles at Quebec. These Battalions also were in very satisfactory order and showed that every attention was paid to their efficiency. The arms, the clothing, the fitting of the accoutrements in each of these battalions, were all that could be desired; the ranks were full, and in point of physique and steadiness, I had every reason to be pleased.

Throughout the 12 Military Districts, all the battalions and all the companies of such corps as were not assembled at Head Quarters were in like measure inspected by a Staff Officer. And, as will be seen in their reports, the general result has been quite as good as could be expected from such a desultory system.

The period of drill had to be restricted to 12 days for Field Batteries of Artillery, and only 8 days for Cavalry, Garrison Artillery and Infantry. I need hardly say the amount of instruction to be acquired in those few days was small indeed.

The attendance of officers and men was very good; in nearly all corps the ranks were well filled.

By training as many men as possible even for those few days, no doubt the organization is kept alive throughout the Dominion,—and if this is only to continue for a short time until a rebound takes place in the commercial affairs of the continent of America, but little harm will be done.

But on the other hand, if the reduction of the Militia vote is to be permanent the work which has cost considerable expense, labour and exertion for many past years, would be in some measure lost. The military spirit which is very strong throughout this country would receive a check, and a fair organization adapted to the conditions of the Dominion would be considerably shaken in its vitality. It would take time to restore the confidence thus impaired.

I cannot conceive that any one will deny the necessity incumbent upon every nation in the past, the present and the future, to maintain a state of military preparation, for the defence of their country from whatever cause, whether externally or internally apprehension of danger to its peace may occur. And the very fact that an annual money appropriation is voted for that purpose shows that in the opinion of this country at large such defences are deemed prudent as well as necessary.

It is sometimes asked by a class of persons of peculiar habits of thought—"Why spend money on military establishments?" "Who are you going to fight?" It is hardly necessary to answer; happily we may have no one to fight, but military expenditure

is a description of insurance that every country has to pay against loss by war, the amount of insurance in a great measure depending upon the value of the property, the risk, and the means of the insurer.

It is a mistake frequently made that an army is maintained solely for the purpose of fighting with somebody. No doubt it should be in a fit state to do so if required, but it is much more a guarantee for peace instead of war, for the nation that is able to back its opinions is pretty certain to prevail over the weak country that has no power beyond simple argument, be that ever so sound and sensible, but wanting the unanswerable logic of force to support it.

In Canada there is happily little prospect of any necessity for military protection of that nature, as our only possible antagonist by land lives across the border upon the most friendly terms; still, with the teachings of history before us, neither nation has thought it prudent entirely to disarm. As long as our friends south of the line remain united, so long will Canada probably be secure from danger of any consequence in that direction. But if the great central Government should ever show signs of inability to control the enormous territory and the massive population over which it holds sway; if sections of men, or if separate States should break off, and giving way to lawless desires become turbulent, then Canada would have to look to her defence along her enormous frontier line of about 3,500 miles between the Atlantic and the Pacific, and to take measures for her protection.

To be prepared for any eventuality is often the best mode of preventing its occurrence, and therefore it would be only affectation to refrain from consideration of our own means of protection through sensibility of any question arising as to our peaceful intentions. A nation maintains a military force for a treble purpose. First, to defend the country against attack from external foes. Second, to aid the civil power, even though only as a last resource in maintaining the law. And thirdly, though in a subordinate degree, as a symbol of the State which pertains to all nations aspiring to rank as such. Every nation is liable to suffer from the effects of commotion, whether arising from external or internal causes. The delicate and sensitive fabric of Commerce and Exchange vibrates even to the emotions of a people. How much more then must it be shattered and disturbed by the collisions of brute force? Therefore, in the interests of peace, should military establishments be maintained, to prevent any invitation for attack. There are some who with a visionary idea of peace at any price would counsel us to disarm in order that we may have peace. They are welcome to counsels which never can prevail. But among the multitudinous hosts which may be reckoned by hundreds of thousands upon the continent of Europe, the modest force of this country could threaten no one. It is no more than a centre, round which, should necessity arise, the power and strength of the nation would congregate.

At a time when the great nations of Europe are carefully examining their armour

and perfecting in every possible manner their military systems, a strenuous effort to popularize the Militia of this country among the classes who are to replenish it, is the least that can be expected. Obstacles against military establishments of any sort exist more or less in every country—perhaps nowhere more in time of peace than under the free, constitutional rule of Great Britain. The economist has his cry, *not* looking beyond to-morrow; philanthropists indulge their sentimentalism, “Who would be a soldier?” “Poor fellow, he suffers such exposure to hardship, to fatigue, long marches in wet and cold, risk of sudden death in war.” Of course he does, but so also does the sportsman, the artizan, the daily labourer, only under other conditions of a more ignoble character. There is also a silly and ignorant prejudice among certain classes against discipline or allegiance of any description. It is a misfortune, but none the less indisputable, that the working classes especially are apt to associate obedience to command and discipline with a violation of their independence, and thus it happens that one of the most ennobling professions to which a man can aspire is often rejected in favour of some trade or calling where subserviency and dependency are no less marked and real, because to the ignorant understanding they are less apparent. To expatiate to such men upon the constitution of society, and to point out the obvious truth that the main condition of a civilized community is mutual dependence, would be to no purpose. Chivalry may not inspire them, martial renown may not tempt them, patriotism even may not animate them; but, they must admit, sordid though it may seem, that their wages in civil capacities would ill bear the strain of providing such luxuries as education and medical attendance, in addition to the necessities and creature comforts of food, lodging, bedding, clothing, fuel, light, and the means of mental and physical recreation. Yet all these things, with any of which the working man can but indifferently provide himself, if at all with some, are freely offered gratuitously to the soldier, and still the philanthropist, conscientious man, who has had the luck to sleep in a comfortable bed each night of his life, will continue to cry, “Who would be a soldier?” forgetting in his conventional bedstead, that but for the soldier and the sailor whom he holds so cheap he might have had occasionally, like them, to dispense with the luxury of an eider down or a composing draught before putting out his light.

If a voluntary army is to be maintained at its present strength, it must reach the sympathies and the self-interest of the great majority, which has no ardent temperament to inspire it and no ambition of military renown to sate; but it is not from this class of men, however good and commendable they may be, that the burning desire of distinction and the thirst for achievement—qualities which are the very body and soul of efficient armies—can be expected. The best officers and the most valiant soldiers are undoubtedly those whose love for their profession, with no mercenary view or prospect of monetary emolument, stimulates them to unwearied exertion in the wide area of enterprize which it furnishes, and it is by these means that every

fresh step in military prowess is enacted. Valour is the heritage of the British family in whatever part of the Empire its branches may have become planted; enthusiasm is the motive power with the soldier—as distinguished from the mild gentlemen who, under his protection, live at home at ease—which directs and regulates it. It is the happy blending of both that has caused success to follow our soldiers in so many past ages, and it will be good for the perpetuation of both, that every possible encouragement should be given by the Government of this country, to maintain the commendable enthusiasm which so highly distinguishes its excellent volunteer militia.

Never in the history of mankind has bravery alone been sufficient to effect the objects which are desired in an army. In these days especially it is essential that we should not only have physical capacity and physical endurance, but that we should have men trained intelligently to use with thought these arms of precision placed in their hands and invented for the destruction of their enemies. When we look at what is now passing, when men almost shudder at the tremendous powers which have been brought into operation for the destruction of their fellowmen, we may almost believe that these very inventions may be preparing a grand avenue for peace, when the powers of destruction have reached their culminating point and no nation will venture to go to war. But till that happy period arrives, when the benovolent can cry peace and the philanthropist can calmly repose upon his pillow without the protection of the soldier, let us look to our Militia in Canada, and determine what amount of force we shall maintain here in a state of thorough efficiency, and how to do it.

I have said that if the reduced vote is only to continue until the expansion of the revenue admits of a resumption in a short time of the usual annual estimates, no great harm will ensue—if so understood—but if the reduction is to be permanent, then it will behove us to cut our coats according to our cloth, and to let the militia throughout the country thoroughly understand the policy to be pursued towards them.

In view of reduced estimates, it would seem that as we can only train about one half our force for the limited space of 8 days, which amounts to the attainment of little or no military instruction, no discipline, no habits of order or soldier-like attainments, it might be better to institute 3 or 4 elementary schools for Infantry and Cavalry upon the same principle as “A” and “B” Batteries. It would follow then to reduce the Infantry force, retaining only the battalions in the cities and towns, by which means we can make them effective. It might be prudent, also, to have a Head Quarter Company in each county, so as to form a nucleus round which the population could rally in case of alarm or danger—or they would re-form the first companies of the county battalion whenever a more liberal appropriation would permit.

The system pursued this year appears to me demoralizing, because we retain nominally a large body of men, who if not brought together long enough for some amount of instruction are no better than recruits, and if we continue to maintain the

present numerical force and only train them, such as it is, for 8 days in each alternate year, we teach them next to nothing, and at the same time incur the expense of clothing and equipping the whole force of Active Militia authorized by law. Now on this point we are drifting into grave difficulties, because the appropriation for clothing in last year's estimates was not sufficient to supply outfits for more than 5,000 men. The clothing now used is intended to serve 3 years. But being of serge, and a bad quality, it will not even do that; but supposing it did, as it should, if of a proper quality of cloth, then if 43,000 men are nominally retained on the strength, it would be necessary to provide 13,000 suits each year, at least, and if the whole force was required to turn out, it could not fall into the ranks unless 14,000 suits per annum, about 3 times the quantity we were able to purchase this year, were procured and issued. At the same time it must be remembered that the 350 men serving in "A" and "B" batteries and in Manitoba receive two suits of uniform, per annum, each, equal to 700 suits, besides great coats when required. These being supplied from the appropriation, under the head of clothing, necessarily diminishes the reserves from which issues can be made to the Militia who train only for a specified number of days each year.

By the present system we pay 40 dollars a year for the care of arms to each Captain of a company who provides an armory and clothing store. We pay a contingent allowance of 30 dollars a year to commanding officers, and eight dollars a year per effective Company, to each Brigade Major. This latter, I think, is open to question; it originated from a desire to remunerate the Brigade Staff in proportion to the numerical strength in their respective divisions, but it would be better to pay them a consolidated sum as an equivalent.

We are by the system above mentioned absorbing our stock of arms, equipment and clothing to keep up a force which we cannot afford to discipline, or even to drill effectively, and are thus diverting considerable sums of money, which if judiciously applied would make a numerical force of half the present nominal strength, really compact and efficient.

The establishment of embodied companies as training schools would provide models to which we could send young men, officers as well as sergeants, from all parts of the country, and feel satisfied that the instruction imparted would be of the most serviceable and durable description, teaching them all points of interior economy, discipline, drill, military law, keeping of accounts, and, not least, the self-confidence in the management of men under arms which can only be acquired by actual presence and constant practice, but can never be derived by theory or from books.

The difficulty in the way of reducing the force of Infantry would no doubt be considerable. Men of the class which supplies the ranks of the Militia of Canada look for prompt action. If their services are required, they are capable and willing, patriotically, to render them with an amount of energy and good-will not to be surpassed;

but I think we should not retain upon the strength one single company, for the mere sake of a numerical army, beyond the number we have financially the means of maintaining with credit to the force itself and benefit to the country generally.

I do not wish for a moment to be understood to convey the idea that I advocate any reduction of the valuable Militia of Canada; far from it, I would not willingly reduce a single man, for I am perfectly sensible of their necessity in the future, and their value in giving status and stability to the country generally in the present. My suggestions are only grounded upon the fact of reduced appropriation with the desire to see that money applied to the best advantage for the military force of the country, and to give the Legislature a fair return for their monetary vote. I trust sincerely that the alternative of reduction may be avoided, but honestly it is my duty to point out and give warning that the present system is not as satisfactory as I should wish to see it.

I have in two previous Annual Reports, recommended the formation of 3 Infantry Training Schools. At present, neither officers nor sergeants have any means of acquiring the details of their duties, and as upon them devolves the necessity of instructing their men, it is only reasonable that they should have the opportunity of rendering themselves capable of so doing. While troops of the line were in Canada, there was every facility afforded for attending the military schools attached to them, and officers and sergeants of militia could fairly master all requisite details. Now there are really no means whatever, by which military knowledge for Cavalry and Infantry can be acquired, and the result must, year by year, grow more apparent. In the cities, I confess I was much struck with the accuracy with which many officers appeared to know their drill and general duties, but that is owing to their possessing the advantage of being able frequently to assemble their companies without pay, and to practice themselves as well as their men.

In advocating the institution of Infantry Schools, I by no means over-look the importance of the Military College. The Infantry Schools are intended to supply a means of elementary instruction in simple regimental acquirements which would be beyond the province of an establishment of a more scientific and higher order. It is also necessary that these schools should be so formed and placed that officers and men attending for short or long courses should not be called upon to travel far from their places of residence.

I should, therefore, suggest the formation of three Model Infantry Schools as follows:—

	Officers.	N. C. O. and Men.
At St. John's Barracks (River Richelieu)....	3	80
At Tête du Pont Barracks, Kingston.. .. .	3	80
At the New Fort, Toronto..... .. .	3	80

"A" Battery to move from Tête du Pont Barracks to Fort Henry, as more adapted for an Artillery Garrison, containing moreover a large depot of arms, ammunition and military stores at present without an adequate guard.

The estimate for each of these training schools upon the model of "A" and "B" Batteries is approximately as follows:—

1 Captain at \$2.82 per diem.....	\$ 1,029 30
2 Lieutenants at \$1.58 per diem each.....	1,153 40
2 Sergeant Instructors, \$1 each.....	730 00
2 Sergeants, 70 cts. each.....	511 00
4 Corporals, 60 ".....	876 00
72 Privates, 50 ".....	13,140 00
Rations for 83, 12 cts.....	3,624 00
Uniform, summer and winter kits, boots, great coats, &c.	2,800 00
Barrack furniture, medical supplies, transport, fuel and lights, contingencies.....	7,137 00
Provision for instruction of 10 Officers and 10 N. C. Officers for periods of 3 months each, for one year, transport included.....	6,750 00
	\$37,750 00
Each School.....	3
	\$113,250 00

Thus for one hundred and thirteen thousand two hundred and fifty dollars per annum, we could secure a certain means of thoroughly educating in all military essentials of an elementary nature, the young officers and sergeants of the militia, leaving it open to officers, afterwards to go through a course of higher instruction at the Military College in a senior department, upon the principle of the Staff College, at Sandhurst. We should then feel satisfied that as the officers and sergeants were thoroughly efficient up to the best modern standard, no difficulty could occur in disciplining and drilling with effect the rank and file of the whole Cavalry and Infantry Force of the Dominion, and really the result would be well worth this moderate expense.

In further considering the best mode of utilising with effect the reduced appropriation, but still in the hope that the reduction may not be permanent and therefore his alternative unnecessary, I have prepared the following statistical plan for consideration, acting upon the impression that if we cannot maintain at present the entire force of Active Militia under the reduced vote, it is wiser temporarily to limit that number to the extent of the means provided by Parliament for its maintenance.

I consider it would be imprudent to make any reduction in either Cavalry, Artillery or Engineers. Upon the rural battalions and the independent companies of Infantry unaffiliated to any Battalion should fall the reduction, if such must be temporarily resorted to, though I shall regret if it becomes necessary.

I am unwilling to put down the following figures, for I believe it would be impolitic in the present and the future to make any reduction in the Active Militia of this country, which has been organized through past years with so much labor and expense. I am only constrained, from the position I hold, to make plain the exigency to which we are approaching, through the reduction of the Military vote by nearly half a million of dollars.

The item of 26,000 dollars for the Military College taken from the 650,000, leaves a comparatively small sum for the maintenance of the Active Force of 43,000 men with its Staff, and the obligatory cost of providing stores of clothing, arms, ammunition, camp equipment, ordnance and warlike *matériel* of every description. I think it right to make this plain, because by-and-bye I might otherwise be reproached for not having brought to notice and given timely warning of the difficulties towards which we are apparently approaching by attempting to maintain a larger numerical force with all its *matériel* and *impedimenta*, than we are granted money to pay for. To this end I have had the following tabulated statement prepared with a view to show what we can alone afford to maintain provided it is the intention to limit our finances in the future as in the past year.

Trusting, however, this may not be the intention, I shall therefore only show what would follow as the result of a diminished appropriation with the largely increased calls upon it, to which I have alluded, and to which I propose to add 113,250 dollars for Infantry Training Schools. Last year, we were only able to assemble 23,000 officers and men: Field Artillery for 12 days, other arms for but 8, I can hardly call it training, for that could amount to very little in those short periods.

With a similar appropriation in future it is clear we cannot maintain more than 20,000 men of all arms, to train them at all usefully, and to arm, equip, clothe and feed them when called out. Making also provision for a proper reserve of ammunition, camp equipment, accoutrements and clothing, which year by year require to be adequately replenished, in the possible event of any need, as well as to make good the quantity expended in the periodical training, and in artillery and rifle practice.

The force now enrolled in Cities, Towns and Villages having a population exceeding 1,000, is 304 Troops, Batteries and Companies of all arms, representing a nominal strength of 18,112 men, in addition to which, in order to retain 20,000 in all 32 Companies might be selected in those portions of the country where villages exist having a population of less than 1,000, but in the immediate neighbourhood of

which the settlements are such as will permit the attendance of men at Company Head Quarters without inconvenience. Or the strength of corps in the cities and larger towns might be increased if that should be considered preferable.

The reduction of the strength of the entire force to 20,000 would permit a corresponding reduction in the amount required to pay for drill instruction, care and repair of arms, ammunition and the perishable and costly item of clothing, with other contingent expenses.

Cities, Towns, and Villages having a population between 1,000 and 2,000.

	Cavalry.	Artillery.	Engineers.	Infantry.	Troops, Batteries and Companies.
Cities.....	9	37	4	116	166
Towns	8	12	0	65	85
Villages over 1,500.....	1	2	0	29	32
do 1,000 to 1,500..	1	0	0	20	21
					304

304 Companies at a nominal strength of 58 officers and men each.....	17,632
Additional 20 for each of the 16 Field Batteries of Artillery.....	320
Additional for Staff of 20 Battalions, 8 each.....	160

Total 18,112

These statistical suggestions are only made upon the assumption that the appropriation for militia, as reduced last year, will so continue. And so it is my duty to show that it is necessary, therefore, our numerical force should be reduced in a corresponding degree, in order that we may have funds to supply the requisite munitions and to train with some effect the force that would remain.

The method I have ventured to point out, with the addition of the formation of Infantry Training Schools will, I conceive, meet that object as fully as the means at our disposal will permit. We should have a compact force of all arms, with officers and non-commissioned officers well trained and instructed, capable of imparting fundamental education and discipline to the rank and file of their corps when assembled, whether for the annual drill or at other seasons of the year.

There is a great military spirit among all classes of the population of Canada which would ensure immense efforts and sacrifices in the event of alarm or apprehension of danger. It has been frequently exhibited, and it is hardly necessary for me again to bring it to notice so prominently, except with the view of adding that given that valuable element of zealous patriotism, it should be cultivated and encouraged in every possible way, to serve the country efficiently if ever suddenly required to be called into action.

Our active force ought to be compact and instructed; no stronger than we have funds to equip and maintain efficiently—corresponding with the parliamentary appropriation, and without imposing upon zealous officers the necessity, which has so frequently occurred, of supplementing considerable sums from private resources to maintain their corps creditably with an emulation that cannot be too much admired.

At the same time it must be borne in mind that the Active Militia is but the advance guard of the army of Canada in case a general call to arms ever should occur. The real force of the country should then be represented by the Reserve Militia, amounting by law to some 600,000 men. These should not be allowed to be merely on paper—as they actually exist and are enrolled, but from the length of time that has elapsed since they were mustered it stands to reason that a very considerable remodelling is necessary.

It would be quite worth while to send a reliable officer of the Reserve every year through the various Regimental Divisions to assure himself and to report for the satisfaction of the Government that all the men on the rolls were effective and not fictitious. We should likewise have Regimental Rolls showing the residence, occupation and age of each man whose name was on the list.

I believe this would be more economical than a general muster every 5 years, and that it would be more satisfactory—by tending to keep alive the general feeling of liability for the defence of the country, if ever necessity should arise for mobilizing the Reserve.

The Military College at Kingston was opened on the 1st of June last; 18 Cadets having passed the qualifying examination for entrance. I made a thorough inspection of the College in October and had every reason to feel perfectly satisfied with the arrangements for the comfort of the Cadets, and their course of studies. Each lad replied to my questions that he was very happy, contented and comfortable, and certainly this was corroborated by the general appearance and demeanor of the whole.

Lieut. Colonel Hewett, Royal Engineers, the Commandant, and Captains Kensington and Hawkins, Royal Artillery, the Instructors, are highly proficient officers, of distinguished professional and scientific attainments. Captain Ridout, 90th Light Infantry, an officer of Canadian family is Captain of Cadets; his duties are performed in a thoroughly satisfactory manner. Every possible attention is paid by all these officers to the intellectual, physical and moral training of the young men, and there can be no doubt that after their curriculum of 4 years in the College they will have acquired a sound mathematical and general education, with all the habits of discipline, regularity and respect for authority which will serve them well through life in whatever capacity they may be launched.

The Regulations of the Military College have all been published and circulated

through the country, and are, I conceive, generally known and understood, but I am aware an uncertainty prevails as to the future employment of the young men who will pass out of the College at the termination of the course. I need hardly say it would be beyond reason to expect a guarantee or promise of employment to every young man. Though I do not speak from authority but only from my own conviction, I have no doubt of the will of the country to employ really meritorious young gentlemen who pass through the College creditably. But it may be possible that some very good, though not very brilliant, lads may pass in a perfunctory fashion, and for such it might be difficult to provide. In the new code of Standing Orders which has just been compiled and published by authority, the following is a transcript of No. 1 section:—

“The establishment of a Military College was primarily undertaken for the purpose of securing such a complete military and scientific education to young men belonging to the country as would qualify them to fill all the higher positions in the Canadian Military Service. The limitation of the number of cadets as provided by the Act, is necessary to hold out a reasonable hope that graduates can be absorbed in the public service. The training and general branches of education will, however, be such as will qualify graduates to fill such other positions in the public service as may be found available when military service may not be required.”

I think in this may be found as reasonable a hope that merit will be rewarded by employment as any parent can expect when placing a lad in the Military College. Perhaps too I might suggest for consideration, that to hold out further inducements to parents who wish to educate their sons at the Military College, application might be made to Her Majesty's Government to offer a limited number of commissions in the army to eligible cadets.

A further examination for entrance took place on 5th December last; 24 lads could have been accepted, but from one cause or another at the last only 7 came forward on the day appointed. It is quite possible, that by holding special examinations, the above number may be complete before the 12th of March. After that no more can be received till September, as the arrangements of the College, as laid down by its constitution, would otherwise be upset. In future it is hoped we may hold half-yearly examinations until the entire number of 100, for which the Act provides, is complete.

I took occasion during the autumn to inspect the two Artillery Schools and the “A.” & “B.” Batteries. I found them as I expected in every respect efficient and doing thoroughly well under the indefatigable direction of Lieut.-Colonels Strange and Irwin, Royal Artillery. In discipline, interior economy and knowledge of Gunnery, practically as well as scientifically, the officers and men attached to these batteries are proficient. These Schools are a very valuable institution for Artillery instruction, and the good work they perform in the education of officers and gunners of the various provincial batteries who attend them for a short or long course, cannot be too highly extolled.

The only field battery that I could inspect last Autumn was that under Major Peters, at London. This excellent officer had spared no pains upon his battery, and therefore in point of general equipment, field and gun drill as well as target practice it was efficient and fit for any rough service.

Throughout the country the 16 Field Batteries are in very thorough order; they are now all armed with 9-pr. rifled guns of the best description, of which we have 60 in use. They are also complete in good harness and other equipments.

The Garrison Artillery is in very good order also, but as a rule the several Brigades have not the same advantages for acquiring proficiency in gunnery and shot and shell practice from want of convenient garrison armaments.

In Ottawa this has been provided for this year by mounting 6 24-pr. guns in a battery on Nepean Point, available for the practice and instruction of the Ottawa Brigade, and also for firing salutes upon all ceremonial and other authorized occasions at the Seat of Government.

I had no opportunity of inspecting any of the Cavalry Corps in the past season. Those that trained by selection under the ballot have been very fairly reported on by the District Staff. Some of their saddlery and clothing stores I did inspect and found them in high order; especially I may mention that of the Squadron of Cavalry at Quebec.

The Military Stores continue in their usual good order, and have a fair reserve of arms, ammunition and general equipment for camp and garrison requirements. These, as I have stated, however, require to be annually replenished to supply expenditure and to add to the reserve stock in case of any operations. Our reserve of Rifle ammunition is particularly small; we have only 150 rounds for each stand of rifles in the country. This is at least one half too little, keeping in view the rapidity with which breech loading arms can be fired. In the item of powder too, our reserve is too small for Garrison and Field Artillery in time of necessity. A main reserve depot of all military *matériel* has now been established at Toronto for Western Canada, but in view of all our depots being close to the frontier line, I am anxious that a large depot for powder and munitions should also be formed at Ottawa.

In last year's report I enlarged at some length upon the importance of re-arming the Citadel of Quebec, the Forts at Point Levis and those at Kingston and Toronto with modern rifled Artillery, nominally for practice, in case of any hesitation as to the term re-armament. A small battery at Gaspé Basin has been also armed with 24-pr. guns for practice. I am glad to say that 10 $\frac{3}{4}$ converted muzzle-loading rifled guns will be sent out to Quebec early in the ensuing open season and mounted on the works. Five guns of the same calibre have also been ordered, and will shortly I hope arrive at St. John, N.B., to arm Point Negro Battery, which commands the

approach to that excellent harbour. These latter have been purchased without any charge upon the Militia vote or the Dominion Revenue. The only ordnance I would propose for this year's estimates are ten 64-pr. rifled guns: five for Quebec and five for Fort Henry at Kingston, to be mounted on 32-pr. iron carriages in our possession—which will save the expense of purchasing wooden ones.

In the same report I fully entered into the reasons why Quebec, the key of Canada from the ocean, should have an armament of modern rifled guns to replace the old obsolete and, now-a-days, useless smooth bore cannon, on its works. My reasons of a year ago are tenfold stronger in view of the present aspect of affairs in Europe, which were then only foreshadowed. It is of paramount importance that Quebec should have such an armament as would forbid the passage of the St. Lawrence to any enemy's privateer, or even ship of war, that might escape the vigilance, through fog or darkness, of British cruisers in the Gulf. Nothing easier than that an enemy's ship bound upon such an errand should appear before Quebec and afterwards steam up to Montreal, to put both cities and any other intervening place under contribution, unless Quebec is so armed as to render such an enterprise so hazardous as to be impossible.

I have heard it boasted that if a ship of war were to force her passage to Montreal for that purpose—"she would never get away." It would be a waste of time to say more to a such vain threat than that there is not a gun along the line of the St. Lawrence, excepting perhaps the 7 inch guns upon the bastions of Quebec Citadel, that could dispute with an iron clad ship in doing what she liked and staying as long as she desired, returning at her pleasure. It will be quite different when we get rifled cannon on the works of the Citadel.

Last summer I was authorized to place a 7 inch breech-loading gun in each of the Levis forts, whose admirable works of the most improved modern profile and projection deserve to be armed. These heavy guns are intended to be mounted on the salient of each fort, as soon as the platforms are prepared and fitted with racers. There are now also sixteen 32-pr. carronades distributed between the 3 forts and mounted in the caponnières to sweep the ditches. It is very desirable that the 7-inch guns should be mounted early in the spring, and I should be glad to see the barbette parapets of these splendid forts more completely armed.

A reduction was last year made in the Brigade Staff to the extent of seven officers, for whom there was not sufficient employment. I consider the staff as at present constituted to be efficient. I shall only again bring to notice the desirability of appointing an officer of the staff upon whom should devolve all the special duties of supply, including commissariat, clothing, which is an involved and unceasing item, transport, and the various other duties pertaining to that branch, which would of necessity be special upon active service, and should therefore be instituted as a permanent department of the Head Quarter Staff.

I shall not extend this report into larger proportions. I beg to draw attention to the suggestions in my report of last year still uncomplished with. I have touched upon the chief additional points of consequence. I again repeat my regret at feeling obliged to point out the necessity that appears to me for compacting the Infantry into smaller dimensions. I don't advocate it—I wish it could be avoided; but I have no alternative than honestly to say what should follow, as a prudent consequent, upon the reduction of our Parliamentary grant.

E. SELBY SMYTH,
Major General.

R S.—Since I wrote the above report the services of parties of the Militia have been called for to aid the Civil power in putting down a disturbance caused by insubordinate conduct on the part of servants of the Grand Trunk Railway Company, and as the circumstances under which this occurred appear misunderstood I venture to add a few remarks on the subject.

In the first instance application was made by telegram to Ottawa; the reply explained that the Militia Act only empowered the Government to call out troops to repel invasion, or to quell insurrection or rebellion. This law is by no means peculiar to Canada, but prevails in Great Britain and in every dependency of the Crown in which I have served. The cause of framing it in such manner may have originated from some desire under the Constitutional Government of the Empire to prevent the possibility of troops being called out for internal commotion except as the very last resource in support of the law, after the Civil authorities were overpowered, or upon sufficient proof of apprehension they might be so.

In the case in point, the course was to swear information before a Magistrate that a breach of the peace was apprehended, then troops could be called for by him if the gravity of the emergency rendered it in his opinion, prudent to do so. At Belleville this occurred, but the Mayor, instead of telegraphing to Kingston, the Head Quarters of the Deputy-Adjutant-General of the District, and only 48 miles distant, made a requisition upon the Lieutenant-Colonel commanding the 49th Battalion, who forthwith complied with it. Next day a reinforcement was called for at 8 a.m., and about forty men of the 15th Battalion were assembled and placed on duty. The official reports since received state that the detachments of both these corps behaved efficiently. Later on, the Mayor telegraphed to Toronto, distant 113 miles, and within a few hours a force of nearly 200 of the Queen's Own Rifles proceeded *en route* to Belleville by train, thus opening the Line for traffic, which was thenceforth resumed. This detachment performed its duty under trying circumstances with steadiness and discipline, as well as forbearance.

As might be expected in an occurrence of such public interest as the interruption of the traffic on the great arterial line of communication throughout Quebec and Ontario, many comments have been made and faults found with the usual facility of those who become "prophets after an event." I merely assert, it is surprising that any volunteers were forthcoming either at Belleville or Toronto, when it is remembered it was New Year's Eve and New Year's Day, general holidays, when, without any previous warning and unknowing of any call for duty, nearly every Volunteer might be naturally expected to be absent for recreation or amusement.

It is also perhaps right to say it is an unusual course to call suddenly upon Volunteer Corps to perform police duties, and to expect they should be as readily forthcoming as regular soldiers quartered in barracks. Had the Mayor telegraphed to Kingston, he could shortly have been supplied with 50, or 80 or 100 disciplined men of "A" Battery, who would have set any mob there at defiance, or had he even sworn in special constables, provided the police were insufficient, it might have been preferable to calling out the military,—the last resource in support of the law. A military force armed with rifles and bayonets, and encumbered with belts and accoutrements is unsuited to quell a disturbance among a disorderly crowd of unarmed men. They must not, except under great provocation and by the special orders of a magistrate, fire upon an unarmed mob, which would be more promptly dispersed by police or special constables, armed with sticks or batons, and who could seize and place in confinement prominent leaders of the riot. Rifles and bayonets are not the weapons for such a service, where one if not both hands of the civil force should be free.

Some smart writing has appeared in regard to the Militia Companies at Belleville, which I shall briefly notice. The 15th Battalion was trained in Camp in 1875, but the 49th was not trained that year. The 15th was not trained in 1876, because it drew a blank in the ballot; the 49th was trained; neither battalion is disorganized. Ammunition is, with few exceptions, issued as a reserve to Volunteer Corps, for the reason that few Company armouries have any magazine or safe place to store it. After the corps have expended their annual practice ammunition no further issue is made, unless, as recently in the Eastern Townships, apprehension arises calling for preparation for service,—it could hardly have been foreseen that a sudden call would be made upon Volunteers to perform local police duties,—it could hardly be expected, as I have stated, that upon the festival of the New Year, and a Sunday moreover, the services of even so many would have been promptly forthcoming. As to great-coats and clothing, the Militia Department is not in fault if any suits were deficient; that blame, if there really is any, rests elsewhere, but my belief is, their clothing is complete. Winter clothing is naturally not issued to the Volunteers unless their active services are required in the winter, as they are usually only called out in summer for training and

field exercise. Two years ago I drew attention to the necessity for retaining the entire clothing, arms and equipment of every Battalion at its head quarters under a responsible officer, and a non-commissioned officer as caretaker. Until such a system is adopted it is impossible for the District Staff Officer to be responsible that great coats are not, as I have represented they were, improperly worn by Militiamen when absent from their Regiments.

May I venture, in conclusion, to repeat the suggestion made in the body of the report, viz: That the strength of the Volunteer force should not exceed the number for which we have funds to arm, clothe, equip and instruct it, and that model schools for Regimental education should be instituted on some approved plan such as I have sketched out.

E. SELBY SMYTH,

Major General.

Ottawa, January 19, 1877.

APPENDIX No. 1.

MILITARY DISTRICT No. 1.

HEADQUARTERS, LONDON, ONTARIO,
7th December, 1876.

SIR,—I have the honour to forward, for submission to the Major-General commanding, the enclosed Inspection Report of the Active Militia in this District under my command, which have performed their annual drill for the year 1876-77, in obedience to General Orders of the 18th May, 1876.

The selections of the corps who were to have the privilege of performing their annual drill were made by lot, in accordance with your instructions, and the following corps were thus chosen:—

NAMES of Corps of Active Militia in Military District No. 1, that were duly warned for Annual Drill for 1876-77, and number of those who drilled.

Name of Corps.	Commanding Officers.	Head Quarters.	Number who performed Drill.	
			Officers.	N. C. O. and Men.
1st Regiment Cavalry.....	Lieut-Colonel Cole.....	St. Thomas.....	8	129
London Field Battery.....	Major Peters.....	London.....	5	74
Wellington Field Battery.....	Major McDonald.....	Guelph.....	5	74
Sarnia Garrison Battery.....	Captain Adams.....	Sarnia.....	.....	.....
7th Battalion Infantry.....	Lieut-Colonel McBeth.....	London.....	1	42
25th do do.....	do O'Malley.....	St. Thomas.....	8	145
26th do do.....	do Attwood.....	London.....	16	382
28th do do.....	do Smith.....	Stratford.....	12	240
29th do do.....	do Peck.....	Berlin.....	9	203
30th do Rifles.....	do Clarke.....	Guelph.....	19	370
32nd do Infantry.....	do Sproat.....	Walkerton.....	16	296
Windsor and Leamington Companies	Major Wilkinson.....	Windsor.....	4	84
Total.....			108	2,039

Thus, the Goderich Garrison Artillery; the 22nd Battalion, Woodstock; the 24th Battalion, Chatham; the 27th Battalion, Sarnia; and the 33rd Battalion, Goderich, were relieved from performing their annual drill for 1876-77.

With the exception of the Sarnia Garrison Artillery, six companies of the 7th Battalion, and two companies of the 25th Battalion, who have not yet been able to perform their annual drill, the remaining corps performed their drill by companies as authorized, at their own head-quarters. The majority preferred to put in their drill by consecutive days, and some companies assembled at their company drill-shed, where they slept and were provided with rations, (by private arrangement) the men remaining on duty and mounting guard the same as if at camp; by this means avoiding the daily journey from their homes to the company head-quarters and return.

The several corps (except five companies who had finished drill and arranged for inspection on the same day that the Brigade-Major and myself were engaged inspecting other corps) were duly inspected either by Lieut.-Colonel Moffat, Brigade-Major, or myself, and the men carefully mustered to ascertain that the number at drill corresponded with those on the acquittance roll, which was found to be the case.

CAVALRY.

No. 1 and 2 Troops of Cavalry drilled together at London, using the Exhibition Buildings for temporary barracks. The squadron turned out remarkably clean and soldierlike for inspection.

ARTILLERY.

The "London" and "Wellington" Field Batteries of Artillery performed their twelve days' drill in camp, according to regulations. Both corps mustered full strength and kept up their previous reputation for being very efficient and fit for service at any time.

To the great satisfaction of the Wellington Field Battery, they were supplied with the new armament of the 9-pounder muzzle-loading steel rifled guns, and have also had an excellent and commodious gun-shed built for them at Guelph, which was very much needed for the care and preservation of these valuable guns.

The London Field Battery while in camp was inspected by the Major-General commanding, who was also present during the annual gun practice with their 9-pounder steel rifled guns. This corps has now got a brick gun-shed built in London, so that the armament and stores of the two field-batteries in this district are now in a position to be properly taken care of.

I am happy to be able to report an increasing desire on the part of both officers and men to go through the course of instruction at the School of Gunnery at Kingston. There can be no doubt but that to the excellent training received there the two field batteries in this district owe a great portion of their efficiency.

INFANTRY AND RIFLES.

Though the squad and company drill at local head-quarters is looked upon as uninteresting in comparison with the excitement and emulation of a brigade camp, still the companies turn out in good strength, resulting in an average of over 41 officers and men per company, and will be better prepared for battalion drill from the squad and preliminary drill of the present year.

The rifles I found to be kept in very good order; a few in nearly every company were in want of repairs. These, I think, might be conveyed by captains of companies to their battalion head-quarters where they could be repaired by an armourer, sent there for that purpose, and thus save the expense of freight and purchase of arm-chests.

As a general rule the men paraded with their belts and accoutrements clean; some companies indeed showed that considerable trouble had been taken in pipeclaying their belts, the men having a pride in getting everything as near the example of "Regulars" as possible. The clothing is in very good serviceable condition and kept clean. A few companies had received issues of the new pattern uniform which appears well suited for drilling in, and the men look smart and soldierlike in it; while the new forage caps are considered a decided improvement on the former issue.

A few companies having been found disorganized on account of the volunteer element within reach being used up, I found very great advantage in moving the head-quarters to an adjoining locality so as to enable those willing to join, or to enrol themselves, and thus keep up the strength of the corps.

I have the honour to be, Sir,

Your most obedient servant,

JOHN B. TAYLOR, Lieut.-Colonel.

Deputy Adjutant-General, Military District No. 1.

The Adjutant-General
of Militia, Ottawa.

MILITARY DISTRICT No. 2.

OLD FORT, TORONTO, 23rd December, 1876.

SIR,—I have the honor to forward, for submission to the Major-General commanding, the accompanying Inspection Report of corps of the Active Militia, relative to the performance of the annual drill of the year 1876-77, in Military District No. 2, in accordance with the General Orders, dated at Ottawa, 18th May, 1876.

The authorized establishment of the Active Militia in the District, consists of:—

	Officers.	N.-C. Officers. and Men.	Horses.	Guns
Cavalry.....	37	495	472	...
Artillery.....	27	390	195	12
Engineers.....	5	70	...	...
Infantry.....	461	6,380	68	2*
Total.....	530	7,335	735	14

*Mountain Guns in possession of the Rifle Company at Sault Ste. Marie.

By the above General Order, the strength of the force in the District, authorized to perform the annual drill of the year, was limited to 3,900 officers, non-commissioned officers and men.

In order to carry out the above order, and under the sanction of the Major General commanding, the following arrangements were made and carried out.

The force may be classed under the following heads:—

The corps whose commanding officers applied for, and obtained permission not to perform the annual drill, as follows:—

Artillery.

Toronto Garrison Battery.
Collingwood Garrison Battery.

Infantry.

36th Battalion, Peel.
39th Battalion, Norfolk.

The corps whose commanding officers preferred and received permission to perform the annual drill to the extent of two-thirds of the strength of their respective corps, rather than run the risk of not drilling at all this year, as follows:—

The Governor General's Body Guard.
2nd Regiment of Cavalry.
2nd Battalion, Queen's Own Rifles.
10th Royals.
12th Battalion, York.
13th Battalion, Hamilton.
37th Battalion, Haldimand.
38th Battalion, Brant.

The corps selected by ballot in order to complete the quota which performed the annual drill, up to their authorised strength:—

The St. Catherines Garrison Battery.
The Engineer Company.
19th Battalion, Lincoln.
31st Battalion, Grey.
35th Battalion, Simcoe Foresters.

44th Battalion, Welland.
77th Battalion, Wentworth.
Rifle Company, Sault Ste. Marie.

The two following corps failed to be selected by ballot, consequently did not perform any drill.

20th Battalion, Halton.
34th Battalion, Ontario.

The three Field Batteries, Toronto, Hamilton and Welland, performed the annual drill in full strength, at their respective head-quarters, agreeable to the above General Order.

It will thus be seen that the two Garrison Batteries and the four Infantry Battalions were the only corps which have not performed the annual drill of this year.

With the exception of the three companies of the 44th Battalion, whose strength was included with the regiment, ordered to drill, but failed to do so (as reported) within the time prescribed by the General Order, I would still beg to recommend that these three companies be permitted to do so.

The Cavalry performed the annual drill at the respective head-quarters of corps: The Squadron, Governor-General's Body Guard, at Toronto.

The 2nd Regiment of Cavalry at the head-quarters of troops. The drill consisted of sword exercise, mounted and dismounted drill, with troop field drill.

The reports made by the Inspecting Field officers of these corps were favorable.

Toronto Field Battery.

I inspected this battery on the 8th July, quartered in the New Barracks, with the Inspector of Artillery, Lieut.-Colonel Strange, R.A.

The battery was duly mustered by the District Paymaster, Lieut.-Colonel Alger.

The battery when paraded in the field for inspection presented a very creditable appearance; very well horsed; the field movements well done; certainly deserved the high encomiums passed upon it by the Inspector of Artillery. The shell practice was subsequently carried out the following days, under the supervision of the Inspector of Artillery.

Hamilton Field Battery.

Inspected this battery on the 6th July, encamped in the Crystal Palace Grounds at Hamilton.

The battery was duly mustered by the District Paymaster, Lieut.-Colonel Alger. Camp was in good order; horses in the stables (attached); very fairly horsed.

Battery paraded in an open space some 10 or 12 acres, a few miles from the camp. Field movements very fairly performed; limber and guns in fair order. 28 horses; no waggons.

Welland Canal Field Battery, and St. Catherine's Garrison Battery.

Inspected by the Inspector of Artillery and Warlike Stores.

The Engineer Company.

This company, which has been lately organized under the command of Lieut.-Colonel Scoble, was inspected by me on the 4th November, at the New Barracks, Toronto.

The company mustered well in their new clothing; looked remarkably well; fine body of men. Arms and accoutrements clean.

Having performed the manual and firing exercises and company drill, the men were relieved of their arms and accoutrements, and gave me practical evidence of the care and attention which has been given to their drill exercises by erecting a spar bridge, well

and carefully put together, sufficiently strong to permit troops to pass over if required; also barrel piers, well and securely bound together; signalling, &c.

This corps is also provided with a band, 18 in number, the clothing of which was purchased by the officers, is in very good order.

A large quantity of stores of all kinds, purchased for the drill and practice exercise of the company (a list of which has already been submitted by me), was on the ground, shewing the zeal and attention which has been shown by all connected with this corps.

The 2nd Battalion Queen's Own Rifles, the 10th Royals, and the 13th Battalion.

These three Battalions of Infantry performed their annual drill at the headquarters of their respective regiments—were inspected by me as regiments. Their appearance on parade was smart and soldierlike; arms clean; accoutrements, though of different sizes and patterns, in very fair order. These regiments have excellent bands; muster good.

The drill of these regiments consisted of the manual and firing exercise. Company and battalion drill was very fairly performed.

The county battalions performed their annual drill, as a rule, at the company headquarters of their respective regiments; were inspected by their commanding officers and the field officers of corps.

These officers report favourably as to the performance of the drill, which consisted principally of squad and company drill, skirmishing, and, where practicable, of target practice.

19th Battalion.

This regiment, 6 companies, under command of Lieut.-Colonel the Hon. T. G. Currie, and No. 6 Troop (Queenston) 2nd Regiment of Cavalry were inspected by the Major-General Commanding, at St. Catherines, on the 13th October, on which occasion the regiment was presented with a new set of colours, the gift of the ladies of St. Catherines and the County of Lincoln.

Nos. 2, 3 and 4 Companies, 38th Battalion.

On the 30th October three companies of the 30th Battalion, Nos. 2, 3 and 4, paraded for my inspection in the headquarter drill shed at Brantford. It gives me much pleasure to be able to report a great improvement in this regiment. The three above companies mustered well; performed the manual and firing exercise very fairly; moved very steady; a marked improvement in their general appearance. A new band is about to be organized, which will add to the efficiency of the regiment.

When at Brantford inspected the rifle ranges, butts, &c., which had fallen into decay and quite unserviceable, all of which has been duly reported. Immediate steps will now be taken to put the ranges in a serviceable condition. Lieut.-Colonel Dickie in command, deserves much credit for the manner in which he has re-organized the regiment.

On the 13th October proceeded to the Sault Ste. Marie, inspected the arms, accoutrements and stores of the Rifle Company under the command of Major Wilson. Found all in good order; also the gun shed substantially built and finished, in which I found the two mountain guns, limbers and stores appertaining to the guns in very good order.

The shed has been built at Major Wilson's expense, who deserves much credit for his zeal in the public service.

Before closing this report I would respectfully submit that as the time for the performance of the annual drill of this year was so limited, it could not be expected that the same results in drill and target practice could be attained as have hitherto been effected, more especially when in brigade camps of instruction. I would, therefore, earnestly and respectfully recommend a return to that mode of performing the annual drill, with the view of keeping up the *esprit* and efficiency of the force.

I would also refer to the great want of qualified Drill Instructors, (when at the performance of the annual drill) which is becoming more apparent every year, or in other words, of officers and non-commissioned officers able to impart *correctly*, squad and company drill, manual and firing exercises, musketry instruction, &c., so essential for all company organizations before being placed in battalions. This want was in a great measure supplied by the cadets (qualified) from the District Military School of Instruction.

From the force of circumstances these Instructors are naturally decreasing in numbers, and their places are not filled up.

I would therefore respectfully solicit earnest attention to this want of company drill and Musketry Instructors. Of course my remarks apply principally to the district under my command.

I consider that I am only doing my duty in bearing testimony to the cheerful zeal and attention shewn by all the commanding officers of corps, as well as the field officers and officers of the different corps, in carrying out, to the best of their ability, the performance of the annual drill of this year.

I beg also to acknowledge the cordial support derived by me from the officers belonging to the permanent Staff of the District.

I have the honour to be, Sir,
Your most obedient servant,

W. S. DURIE, Lieut.-Colonel.
Deputy Adjutant-General, Military District No. 2.

MILITARY DISTRICT No. 3.

DEPUTY ADJUTANT-GENERAL'S OFFICE,
KINGSTON, 13th December, 1876.

SIR,—I have the honour to forward, for the information of the Major-General commanding, my Annual Report on the state of the Militia in Military District No. 3, and much regret that my serious illness has prevented my sending it in at an earlier date.

I am still unable to attend office, but Brigade-Major Lieut-Colonel Worsley has made out the report (A) on the state of efficiency of each regiment in the district, which has performed drill for the year 1876-77, and will no doubt furnish you with all the information in his power. I beg to append a return (B) shewing the establishment, the number detailed for drill, the number actually drilled, the figure of merit of each battalion, the best company in each battalion and the best shot, together with the amount paid to each corps by the District Paymaster.

The selection of corps for drill, was made by lot, in the presence of two field officers of the active force and in accordance with instructions from Head quarters, when the following corps were exempted from drill:—

One Troop, 3rd Provisional Regiment of Cavalry.
One Troop, 4th Provisional Regiment of Cavalry.
Napanee Garrison Battery.
15th Battalion.
16th Battalion.
7 Companies, 40th Battalion.

3rd Provisional Regiment of Cavalry.

On the 21st of September I inspected two troops of this regiment at Peterborough, the Port Hope Troop, under the command of Lieut-Col. Smart, having marched to Peterborough to perform their annual drill together. They were billeted

in the Agricultural building, blankets being supplied to the men from the Government store. Lieut-Col. Boulton commanded the parade at the inspection, putting the troops through several manœuvres, marching past at a trot, gallop and ranking past, all well performed. Major Rogers commanding the Peterborough troop, putting them through the sword exercise, also well performed.

The general appearance of the men was good, accoutrements clean and in good order, and the horses, especially those of the Peterborough Troop very fine. Great credit is due to Lieut-Colonel Smart, officers and men of the Port Hope Troop for their zeal in undertaking so long a march, for the purpose of making the short period allowed for drill this year as efficient as possible by joining the Peterborough troop.

I beg to enclose herewith a letter (C.) to me from Lieut-Colonel Smart, relative to the march of his troop from Port Hope to Peterborough which contains some useful information. Major Rogers, complained (and very justly so) of the trowsers recently issued to the men as of inferior quality and totally unfit for cavalry soldiers. I would respectfully suggest that in future pantaloons of a good strong texture be served out to this branch of the service, believing that the men would be quite willing to provide themselves with long boots, which would give them a much more soldier-like appearance than they have at present.

4th Provisional Regiment of Cavalry.

On the 4th of July I inspected the Kingston and Loborough Troops of this regiment, under command of Lieut-Colonel Duff.

Owing to ground selected for inspection being totally unfit for the drilling of cavalry, I was obliged to content myself with a few manœuvres at a walk and the sword exercise. I regret to say that in preparing for the inspection, Lieut-Colonel Duff's horse fell, breaking its neck, but providentially the rider escaped with slight injury. The general appearance of the men was good and the horses and equipment of the Kingston Troop superior to that of the Loborough Troop, in whose clothing and equipments I regret to say I found many deficiencies.

On the 6th of July I inspected the Picton Troop, under the command of Major White. The men were billeted in the Agricultural Hall, performing their drill in four days.

The general appearance of the men was good, their arms, accoutrements and clothing in good order and the horses also good.

The troop marched past and performed several manœuvres very creditably, but were unable to go through the sword exercise not having been practiced in it.

Artillery.

All the batteries detailed performed their drill. The Field Batteries in camp and the garrison batteries at their respective head-quarters. The Inspector of Artillery will report on the state of efficiency of these batteries. I accompanied him on his tour of inspection through my district.

The two Field Batteries have been recently armed with the new rifled muzzle-loading field gun, and are now complete in every respect as far as equipment is concerned.

Infantry.

The battalions of infantry performed their drill by companies at their respective company head-quarters, and were inspected by me or Brigade Major Lieut.-Colonel Worsley, on completing their drill. The report on the state of efficiency of each company is embodied in that of the regiment, with the exception of that of the 14th Battalion, which performed its drill in battalion, and was inspected by me on the 13th July. After inspecting the battalion minutely in the ranks, they marched past in open and quarter-column, and were then wheeled into line, and put through the manual and firing exercise by the Adjutant, Capt. Smythe, and through various battalion movements by Lieut.-Colonel Callaghan, all of which they performed in a most

creditable manner. The general appearance of the men was good, and their arms, accoutrements and clothing in good order, though I observed a few deficiencies in regimental trousers.

I have much pleasure in bringing to your notice the Port Hope Companies of the 46th Battalion and their band, whose cleanliness and general appearance on parade was quite equal to any regiment of the line. Their drill was also good, reflecting great credit upon Lieut.-Colonel Williams and all concerned.

The Lindsay Company of the 45th Battalion was also very efficient in drill, as also the Battersea, Portsmouth and Barriefield Companies of the 47th Battalion.

The two companies of the 40th Battalion (Cobourg and Brighton) also turned out and performed their drill in a most creditable manner.

In making my inspection I was sorry to observe that in many of the companies there were men deficient in articles of uniform, thereby giving an unsoldierlike appearance to the whole company, and shewing negligence on the part of the officers in command of companies in not collecting and storing their clothing after the annual drill. I believe it would be to the advantage of the Government if all the arms, clothing and equipment were concentrated at battalion head-quarters, under the eye of the officer commanding the battalion and in charge of a paid caretaker, whose services might be made available if necessary as a drill-instructor, as there would be no difficulty in obtaining the services of qualified non-commissioned officers recently discharged from Her Majesty's service who would be only too glad to obtain such employment.

I would here beg to express my thanks to the officers commanding corps for their assistance in making arrangements for these inspections whereby much time as well as expense was saved.

Drill Sheds.

No new drill sheds have been erected in the district since the last Report and the one at Cobourg, which was destroyed by fire in 1875, has not yet been rebuilt, though I would strongly recommend that it should be and upon the same plan as the one at Port Hope, which is the best in my district. This has already been the subject of a special report to Head Quarters.

In travelling through the country, I regretted to observe that many of the drill sheds were in a bad state of repair, the glass broken and in some instances doors off, showing a want of care on the part of those in charge. The one at Norwood especially; the rooms in which the arms, accoutrements and clothing of the company are kept, having become detached from the main building, necessitating their removal to the private residence of the Captain.

Captain Preston, of the 46th Battalion reported to me that the drill shed at Lifford was of no use to his company, and suggested its removal to Bethany, where it would be available for his men, and also for the men of the Durham Field Battery who reside chiefly in that neighbourhood. I directed him to make a special report on the subject, which he has not yet done.

I would beg to observe that the period allowed for drill this year is too short for much to be accomplished, the majority of the men in the ranks being only recruits and their instructors in many instances not very well up to their work. The inspection of companies separately has this advantage, that it enables the Inspecting Staff Officer to judge of the capabilities of each individual officer in command, and by pointing out defects might possibly be the means of inciting them to become more proficient in drill.

I was sorry to notice that the non-commissioned officers, as a rule, were of very little assistance; but this is not surprising, as there is at present no means afforded them of acquiring a knowledge of their military duties.

I think it would be a great advantage to the force if the Infantry and Cavalry Schools were re-opened at this station during the winter months; and, in the event of their being so, would suggest that the old system of giving a bonus to those who passed be discontinued, and that in lieu a daily rate of pay be allowed to cadets

while attending the school: by this means only those who are anxious to acquire knowledge of their drill would be induced to attend, and it would effectually exclude those whose sole object in going formerly was to obtain the \$50 grant. Some means for providing instruction must shortly be adopted, otherwise in a few years there will be no qualified officers in the force.

The report of Lieut.-Colonel Worsley is herewith forwarded.

I have the honour to be, Sir,
Your obedient servant,

BOWEN VAN STRAUBENZIE, Lieut.-Colonel,
Deputy Adjutant-General, Military District No. 3.

The Adjutant-General,
Head-Quarters, Ottawa.

[A.]

BRIGADE OFFICE, KINGSTON,
15th December, 1876.

SIR,—It is with regret that the duty of making up the inspection reports of corps in the Military District No. 3 has devolved on me, owing to your severe illness, which I trust now will soon be at an end. I enclose them to you and trust they will meet with your approval. The corps which I received your instructions to inspect and report upon were the following, viz:—

47th Battalion.

I inspected Nos. 2 and 3 Companies on the 5th July. The company drill was fair, considering the short time and number of recruits; manual and firing exercise indifferent, and skirmishing fair. In No. 3 Company at Elginburg the physical appearance was good, in fact it was the best company of the two.

On the 21st September, accompanied by the officer commanding, Lieut.-Colonel G. Kirkpatrick, I inspected No. 1 Company at Battersea. The drill of this company surprised me, it was really well. The Instructor, (the captain) a good one; the guide, markers and men knew their work, and the Company Buglar could blow every call used in the service. The manual and firing exercise, well done; skirmishing excellent, arms and accoutrements not so clean as I could wish. This company was reported to be a strictly temperance one, which accounted, perhaps, for their great attention and steadiness at drill.

40th Battalion.

On the 10th November I inspected No. 2 Company of the 40th Battalion, at Cobourg. Arms and accoutrements very clean, also the men, who had their hair cut short; a great improvement in many companies. Company drill very good; manual and firing exercise creditable; skirmishing also. This is all one could expect, and was due to the officers, and to Lieut.-Colonel Smith and Major Smith (late Brigade Major) who take great interest in anything connected with the 40th Battalion.

49th Battalion.

On the 28th November I inspected No. 1 Company, 49th Battalion. This company has actually, I was informed, no uniform belonging to the company, but that the officers had purchased tunics for them. This company was well drilled, though it paraded in so confined a space, being at night in the company's armory, that it did not do them justice. Manual and firing exercise well performed; arms and accoutrements very clean, and the target practice well carried out, and the result good.

I inspected No. 3 Company at Sydney on the 29th November, and was accompanied by Lieut.-Colonel Brown. I was not in any way pleased with this company; its drill was indifferent. The physical appearance of the men was very small; some young and others very old. They had little uniform, giving an unsoldier-like appearance. The arms and accoutrements were fairly clean. Target practice was performed. The company had little instruction worth speaking of.

I inspected No. 5 Company on the 20th November, accompanied by the officer commanding and the Adjutant. This company was composed of very fine men indeed, but they had received no instruction. Company drill, bad; manual and firing exercise, indifferent; skirmishing, bad. The officers wore the uniform of the 4th, with civilian *wide-a-wakes* as a head-dress, and the men generally were without uniform.

Target practice has been performed, I believe, but I have not received the registers.

Trenton Garrison Battery.

Accompanied by the Inspector of Artillery I inspected the Trenton Garrison Battery on the 25th November, and considering the short time, and in it so much to learn, and not having been out for two years, they did, I think, fairly. The officers, however, knew nothing of their work; arms and accoutrements clean.—I refer to infantry drill. (See Inspection of Artillery Report.)

On the Drill of 1876-77.

I shall make a few remarks on the effect the drill has had this year in this district: it has kept companies together, which is something, and that is about all. If at each company head-quarters we could have sent out a really first rate Instructor, as from the School of Gunnery here to the artillery companies, who would have really drilled them, better results would have been obtained; but this kind of knowledge is fast dying out in this district, it is now two years since any officer or non-commissioned officer obtained a certificate either in the Infantry or Cavalry, and unless something is done in this direction, I fear very bad results for the Militia force here. Good instruction is worth paying for, but it by no means follows, because a man has been a non-commissioned officer in Her Majesty's regular army, that he should be a good instructor, it is quite a special gift, and I have seen as good a one as I ever knew, a volunteer, but he must have practice, and come (to use the expression) fresh from the mill in order to do his work effectually, he is then a host in himself for instruction purposes, and can make himself felt amongst a thousand men. I trust, therefore, that the Government may see fit to establish schools, both of Infantry and Cavalry, as I feel persuaded it would be money expended in the right direction, in sending out qualified men to instruct at the annual drill.

Target Practice.

I send you the details of target practice; the results are not what I could wish. There are, no doubt, in Canada some first-rate marksmen, but they are few in number. To shoot well with a rifle a man must be taught, or he must take such pains with himself by practice to become a marksman, otherwise he will be more dangerous to his friends than his enemies. At various times I have visited the camps of instruction and watched the practice, when the shooting was so bad that I am certain people would not credit it, but the results on paper would be good; but I find it is easier to shoot on paper with a pen with good results, than with a Snider at a small target at 500 yards. In this also the services of competent instructors are required, as much as in the drill.

Arms and Accoutrements.

I have much pleasure in informing you that the arms and accoutrements in the 7th Brigade Division are in a much better state than they were, and I find that

stopping the allowance for care of arms in cases where they are in a bad condition has a wonderful effect. The Field Batteries have all stores in excellent condition, particularly the harness. The cavalry equipments is also now well cared for. I trust, however, battaion armouries with paid caretakers will be insisted upon. The force is to a great measure minus haversacks and great coat straps; these I look upon as necessities with our force as accoutered, and should be made up to the established strength of the companies.

Enrolment of Men.

It has come to my knowledge that the men in many companies are not really legally enrolled when they are called out for training. Since I have known this, I have taken pains to see the rolls properly made out, filled in, and the men sworn in. Notwithstanding many drawbacks I think the Militia Force here is now in better order than it ever was; it has stood the test of time, and without the excitement of a Fenian raid to keep it up, or the presence of Her Majesty's regular troops to emulate officers and men up to the proper standard of excellence, and I therefore trust that we have a bright future before us, and with the Military Schools already established and in which we all feel a pride, and others I trust to be formed here, it will continue to improve and become second to none.

I have the honour to be, Sir,
Your obedient servant,

P. W. WORSLEY, Lieut.-Colonel,
Acting Brigade-Major, 6th and 7th Brigade Divisions.
The Deputy Adjutant General of Militia,
Military District No. 3, Kingston.

[B.]

MILITARY DISTRICT No. 3.

RETURN showing the Establishment; the Number detailed for Annual Drill; the Number actually Drilled; Figure of Merit of Battalion; Figure of Merit of the best Company in each Battalion, and the best Shot; together with the amount paid to each Corps by the District Paymaster.

Corps.	Establishment.		No. detailed for drill.		No. actually drilled.		Figure of Merit of Battalion.	Figure of Merit of best company in each Battalion.	Musketry.	Best Shot.	PAYMENTS.	
	Officers.	Non-commiss'd Men.	Officers.	Non-commiss'd Men.	Officers.	Non-commiss'd Men.					Amount paid by District Paymaster to each Corps.	\$ cts.
3rd Regiment Cavalry	13	126	6	64	6	59	No returns.	17-60	Sergt. Sanderson (36)		\$ 674 00	12 Troops drilled.
4th do	15	168	8	97	8	97					1,082 00	do
Durham Field Battery	6	75	6	74	6	74					1,385 88	
Kingston do	6	75	6	74	5	55					1,165 68	
Coburg Gar. Battery	2	42	2	42	2	36					160 00	Not detailed for drill.
Napanee Gar. do	2	42	2	42	1	34					Nil.	
Port Hope Gar. do	2	42	2	42	2	42					144 00	
Trenton Gar. do	2	42	2	42	2	42					184 00	
14th Battalion	20	252	14	252	12	210	11-84	22-70	Sergt. Hume (48)		936 00	1 Company No. 2 not exercised
15th do	20	252										do
16th do	21	336										do
40th do	26	378	6	84	6	84	No return.				384 00	Only 2 Co's. detailed for drill.
45th do	20	252	14	252	14	225	13-70	21-17	Pte. Grundy (44)		1,012 00	
46th do	20	252	14	252	14	236	No returns.				1,056 00	
47th do	22	294	16	294	16	282	19-28	22-41	Sergt. Baitley (48)		1,304 00	
48th do	20	252	14	252	8	230	17-39	22-78	Sergt. McGinnis (50)		984 00	
49th do	18	210	12	210	9	122	26-61	31-23	Pte. Hogle (35)		560 00	
57th do	20	252	14	252	13	2-8	Not ascert'd	18-36	Sergt. Miller (44)		1,016 00	
Total.	258	3,442	136	2,283	122	2,014					\$12,047 56	

BOWEN VAN STRAUBENZIE, Lt.-Colonel,
Deputy Adj.-Genl. M. D. No. 3.

[C.]

3rd Provisional Regiment of Cavalry.

PORT HOPE, 25th November, 1876.

SIR,—I have the honour to report that I mustered the 2nd Troop of the 3rd Cavalry at Port Hope, on the morning of the 18th September last, for the purpose of annual drill.

It had been previously arranged by Lieut.-Colonel Boulton that we should march to Peterboro', the head-quarters of No. 3 Troop, and put in our drill together there.

The troop paraded in heavy marching order, each man having provided himself with one ration, and at one o'clock p.m. we commenced our march by the main, or what is called the Boundary, Road for Peterboro'. This is a good gravel road running between the Townships of Hope and Cavan on the west side, and Hamilton and Monaghan on the east side. Arriving at the Village of Centreville, 15 miles from Port Hope, we halted for an hour for refreshments. Continuing the march we reached Peterboro', a distance of 31 miles, making the march in seven hours, through a rain storm which continued all day.

I have to state that the march was conducted in an orderly manner, without any accident or injury to man or horse, and without any apparent exertion, the proof of which is that every man and horse appeared on duty next day.

Arrangements made by Quartermaster Stapleton, with a hotel keeper to board the men for 35 cents per day, proved to be very satisfactory. The men used the sheds of the Agricultural Association, which are on the same grounds as the drill shed, for sleeping in. The horses were put up in the stables attached, and it was an excellent place both for the protection and safety of the animals. The forage for the horses cost 30 cents per day.

On the 23rd September the troop under Lieut. Williams marched home, leaving Peterboro' at 9 o'clock, a.m., halting at Centreville for one hour, and arriving at Port Hope at 4:30, p.m.

I have the honour to be, Sir,
Your obedient servant,

R. W. SMART, Lieut.-Colonel.

Lieut.-Colonel Van Straubenzie,
Deputy Adjutant-General, Kingston.

MILITARY DISTRICT No. 4.

DEPUTY ADJUTANT GENERAL'S OFFICE,
BROCKVILLE, 4th December, 1876.

SIR,—I have the honour to submit, for the information of the Major-General commanding, this my Annual Report for the present year, on the state of the Active Militia in Military District No. 4, together with "Abstract Inspection Report" and "District Target Practice Returns."

The strength of the force as originally organized, is as follows:—

	Officers and Men.	Horses.
Cavalry, 2 Troops.....	90	90
Field Artillery, 2 Batteries.....	160	122
Garrison Artillery, 7 Batteries.....	412	5
5 Battalions of Infantry and Rifles.....	1,818	25
3 Independent Companies of Infantry.....	174	
Maximum strength at present.....	2,654	242

The above are exclusive of the Governor General's Foot Guards.
Reduced strength as per General Orders of 23rd April, 1875:—

	Officers and Men.	Horses.
Cavalry, 2 Troops.....	88	88
Field Artillery, 2 Batteries	160	122
Garrison Artillery, 7 Batteries.....	316	5
5 Battalions of Infantry and Rifles.....	1,580	25
3 Independent Companies of Infantry.....	132	
Total.....	2,276	240
Strength authorized to perform drill for 1876-77, as per General Orders of 18th May, 1876:—		
All arms.....	1,800	124
Actual number who performed the drill 1876-77:—		
All arms.....	1,786	124

Pursuant to General Orders I made the selection of companies which were to drill, but owing to some of those selected being a few below the maximum strength, I placed three additional ones under Orders, which completed the quota within fourteen.

CAVALRY.

The Ottawa Troop—Capt. N. Sparks.

Owing to the impossibility of having satisfactory musters, except by assembling the men and horses for consecutive days drill, Captain Sparks made arrangements to have the men and horses occupy buildings at "Mutchmor Driving Park," where the men cooked their own rations, and lived as if on actual service.

Although the weather had been very wet the day and night before, the men paraded in a clean and soldierly manner for inspection, were of good physique, and well mounted, and for the short period of drill showed satisfactory progress (see Abstract Report). The absence of both subalterns caused considerable inconvenience and threw too much work upon the Captain.

A qualified Cavalry Instructor would be of much service to this troop.

Present at Inspection.

Officers	1
Non-Commissioned Officers and Troopers	33
Horses	34

Prescott Troop—Capt. Raney.

This troop performed the drill in consecutive days at Prescott, the men making their own arrangements for rations and forage. Although the head-quarters of this troop is at Prescott, the men and horses are from the country, principally from the Township of Edwardsburg; consequently they could not live in Prescott for a number of days without being put to considerable expense, but this they preferred to drilling at odd times.

The troop presented a creditable appearance so far as the physique of men and horses, but the appointments were not so well cleaned as they should have been; this detracted from the general appearance. The field movements, sword exercise and skirmishing were all well and smartly executed.

Present at Inspection.

Officers.....	2
Non-Commissioned Officers and Troopers	32
Horses	34

FIELD BATTERIES OF ARTILLERY.

The Ottawa Battery—Capt. Jas. Stewart.

This battery performed twelve days' drill in camp at Ottawa, and presented the efficient, clean and soldierly appearance for which this old corps is noted. The inspection was made by Lieut.-Col. Irwin, Inspector of Artillery, Province of Ontario, to whose report I beg to refer.

A new feature at this inspection was that of competitive driving for four prizes which were generously given by Capt. Stewart.

1st Prize won by No. 3 Gun.

Drivers H. Marling, who has served twelve years, and A. Gray, who has served eight years.

2nd Prize won by No. 1 Gun.

Drivers T. Demptsey, who has served fourteen years, and R. Martin, who has served eleven years.

3rd Prize won by No. 2 Gun.

Drivers R. Nelson, who has served fifteen years, and D. Johnston, who has served seven years.

4th Prize won by No. 4 Gun.

Drivers W. Henry, who has served twenty years, and R. Bell, who has served eleven years.

I may here add that a Rifle Association has been in existence in connection with this corps for some years, several hundred dollars being given annually as prizes. This year the matches were carried on in connection with the Ottawa Troop of Cavalry; the Cavalry and Artillery carbines being the weapons used in the competitions.

Capt. Stewart has also organized in connection with the battery an efficient band of sixteen musicians, which will, I trust, be recognized by the Department as being entitled to the same consideration as battalion bands.

Owing to a gale of wind which was blowing during the last few days of the encampment, the targets for shot and shell practice could not be placed in the river, consequently the practice could not take place. The corps had been entered to compete for the prizes of the Dominion Artillery Association, and Major Cotton, with proper assistants from "A" Battery, had been sent to Ottawa to superintend the firing. It is therefore hoped that permission will be given to allow this practice to take place in winter on the ice.

Capt. Stewart states that the reduction of horses to twenty-eight interferes very much with the efficiency of the corps, and as no reduction has been made in drivers and gunners, it is a difficult matter to utilize the men to good advantage, which, probably, partly accounts for the organization of the band.

Present at Inspection.

Officers	5
Non-Commissioned Officers, Gunners, Drivers and Band	71
Horses	28

Gananoque Battery—Capt. Wm. McKenzie.

This battery performed twelve days' drill in camp on the bank of the St Lawrence, about two miles west of Gananoque, and presented a clean, soldierly and efficient appearance, and notwithstanding that this is a new battery, and only the third annual drill which it had performed, Lieut.-Col. Strange, Inspector of Artillery, who made the inspection, complimented the officers and men very highly on their appearance and efficiency, and to whose report I beg to refer.

At the time of the encampment and drill the corps was in possession of the bronze smooth-bore guns, with which the competition for the Dominion Artillery Association prizes was carried on. Owing to some mismanagement or accident with the target, the practice (although superintended by an officer of the "A" Battery) was not satisfactory.

The new steel muzzle-loading rifled guns have, since that time, been issued to Captain McKenzie for the use of this corps, in whose hands I am sure they will be well cared for and efficiently handled.

Owing to the reduction of the horses to twenty-eight, it was not found practicable to turn out the full number of men authorized.

Present at Inspection.

Officers	6
Non-Commissioned Officers, Gunners and Drivers	52
Horses	82

GARRISON ARTILLERY.

The Ottawa Brigade—Lieut.-Col. Jas. Egleson.

This brigade numbers seven batteries, all of which have head-quarters at Ottawa except No. 3 Battery, which is six miles in the country, and which came into the city and paraded with the Brigade for the annual inspection.

The ranks of the corps are well filled, and the officers are zealous in the discharge of their duties. It is impossible for a great number of the officers to leave their private business sufficiently long to enable them to go through a course of instruction at the School of Gunnery, consequently promotion in the Brigade is blocked, and the officers are reduced to fifteen (in place of twenty-eight). On this reduced number devolves the whole expense connected with the corps, including that in connection with the band. I submit that the interest of the service require some scheme to be devised by which this difficulty may be overcome.

Owing to the small and inconvenient drill shed at Ottawa, but few movements could be gone through at the inspection. While the corps showed that it had received considerable training, the Infantry movements were not gone through with much precision. During the summer a great part of the drills had been performed with the big guns on Parliament Hill. These guns have now been moved to Nepean Point, where they will more easily be made available for the drill and exercise of the corps, a knowledge of which appears to be the pride of artillerymen generally to acquire.

Present at Inspection.

Officers	15
Non-Commissioned Officers and Gunners.....	291
Efficient Band	21
Total, all rank.....	306

INFANTRY AND RIFLE CORPS.

18th "Prescott" Battalion of Infantry—Lieut.-Colonel A. Urquhart.

(Head Quarters, Hawkesbury Mills.)

Six companies strong, five of which were authorized to perform the drill. This is purely a rural corps, two companies being at Hawkesbury Mills, one each at Vankleek Hill, L'Original, East Hawkesbury and Plantagenet, and for the past few years all have been efficiently maintained.

Drill and efficiency as follows:—

No. 3 Company, indifferent; Nos. 2 and 4, fair; Nos. 1 and 6, good; the latter two being particularly clean and well dressed, steady on parade, and skirmished very well indeed. All completed the target practice.

Present at Inspection.

Officers.....	10
Non-Commissioned Officers and men.....	182
No Band.....	

Total, all ranks..... 192

41st Battalion of Rifles—Lieut.-Colonel W. H. Cole.

(Head Quarters, Brockville.)

Five companies strong, four of which were authorized to drill. No two companies are located at the same place: No. 1 Co., at Head Quarters; No. 2, Gananoque; No. 3, Frankville; No. 4, Merrickville; No. 5, Carleton Place.

With the exception of No. 6 Company now disbanded, the battalion has always been efficiently maintained. It would be very desirable to have another company authorized so as to complete the battalion to six companies.

Drill as per abstract, Inspection Report. General efficiency fair. All completed the target practice.

Present at Inspection.

Officers.....	9
Non-Commissioned Officers and men.....	165
An efficient band of.....	15

Total, all ranks..... 174

42nd Battalion of Infantry—Lieut.-Colonel J. D. Buell.

(Head Quarters, Brockville.)

Seven companies strong. No two located at the same place: No. 1, Almonte; No. 2, Brockville; No. 3, Perth; No. 4, Kinburn; No. 5, Lansdowne; No. 6, Smith's Falls; No. 7, Pembroke.

Six companies authorized to drill. The battalion has always been efficiently maintained. Drill as per abstract, Inspection Report. Nos. 1 and 2 Companies fair; No. 4, good; Nos. 3 and 7, very good. The latter two being particularly clean, steady on parade, and well up in drill.

Present at Inspection.

Officers.....	10
Non-Commissioned Officers and men.....	260
An efficient band of.....	20

Total, all ranks..... 270

56th " Grenville " Battalion (*The Lisgar Rifles*)—Lieut.-Colonel H. D. Jessup.

(Head Quarters, Prescott.)

Seven companies strong. Nos. 1 and 2 at Head Quarters; No. 3, Burritt's Rapids; No. 4, Kemptville; No. 5, Ottawa; No. 6, North Augusta; No. 7, Spencerville. The whole of the companies authorized to drill.

With the exception of one or two companies which are now reorganized; the battalion has always been efficiently maintained. Drill as per abstract, Inspection Report. No. 1 Company, physique good, drill fair; No. 2 Company (with the exception of three or four men who were ordered to be discharged), physique good, drill fair; Nos. 3, 6 and 7 Companies, good; No. 5 Company, physique and general appearance very good. Manual and company movements, good. Firing exercises and skirmishing indifferent.

Present at Inspection.

Officers	14
Non-Commissioned Officers and men.....	256
No Band.	

Total, all ranks..... 270

59th " Stormont and Glengarry " Battalion of Infantry—Lieut.-Colonel D. Bergin.

(Head-Quarters, Cornwall.)

Seven companies strong, six authorized to drill. Nos. 1, 2 and 3 Companies at Head-quarters; No. 4, Lancaster; No. 5, Farran's Point; No. 6, Lunenburg; No. 7, Athol.

This battalion has been efficiently maintained for a number of years. Drill as per abstract, Inspection Report. Nos. 1, 2 and 3 Companies, fair (a few men objected to on account of age and size); No. 4 Company, good; Nos. 5 and 6 Companies, very good. The two latter paraded very clean and soldierlike, were steady on parade and well up in drill.

Present, at Inspection.

Officers	14
Non-Commissioned Officers and men.....	256
Band.....	9

Total, all ranks..... 270

INDEPENDENT COMPANIES.

Goulburn Infantry Company, Capt. Wm. Garvin.
 Metcalfe do do Capt. Ira Morgan.
 Vernon do do Capt. Robert McGregor.

Metcalfe Infantry Company—Capt. Ira Morgan.

For the past few years this company has been somewhat sickly, but now appears to have been reorganized and placed upon a more satisfactory footing. Many of the stores are deficient (Special Report). Drill as per abstract, Inspection Report. Appearance and physique, fair, and under Sergt.-Major Keating, Governor General's Foot Guards, the company showed a fair amount of training.

Present at Inspection.

Officers.....	3
Non-Commissioned Officers and men.....	42

Total, all ranks..... 45

Vernon Infantry Company—Capt. Robert McGregor.

This company has always been efficiently maintained. Drill as per abstract, Inspection Report. The physique this year is above the average, men very clean and steady; with a few days' more drill would make a highly efficient company.

Present at Inspection.

Officers	3
Non-Commissioned Officers and men.....	42
	45
Total, all ranks.....	45

Goulburn Infantry Company—Capt. Wm. Garvin.

This company was not authorized to drill, but can always be depended upon when required.

GENERAL REMARKS.

The system of drill as carried out this year has not given satisfaction. The small amount of pay authorized has been no inducement for good men to take a lively interest in the welfare of the force, and the difficulty of carrying out the drill (more particularly by rural companies) except by consecutive days has proven too great for any of the officers to wish for a continuance of the present system.

Those who thought it would be beneficial to drill at convenient times as authorized this year are now fully satisfied that continuous days drill either at head-quarters or in Brigade Camp is the most satisfactory manner of training, and the Brigade Camp is generally given the preference.

The new clothing is an improvement on the previous issue, but I noticed a tendency in the jacket to work up above the waist belt and form a plait across the back. The colouring is often bad, and the trousers are of poor quality as well as colour. All would prefer the old pattern cloth tunic.

I would urge the propriety of authorizing a more liberal allowance of ball ammunition for practice, which would enable companies to fire at the target at other times than when performing the annual drill, owing to the shortness of which there is no time for proper instruction in this very important part of a soldier's training.

Increased interest has been manifested during the past year in rifle practice, more particularly at Ottawa, Brockville, Almonte and Pembroke; but owing to the cost of ammunition many who would make good shots are deterred from taking part in such practice.

I am still of opinion that a small sum of money given as prizes to be competed for at Company head-quarters under the proper regulations, would be of great utility in stimulating more generally the members of the force to acquire a thorough knowledge of rifle shooting.

The Brigade-Major has made the usual inspections of the stores, and otherwise assisted me. The District Paymaster has been prompt in making payments, and in mustering the Field Batteries which were in camp.

All of which is most respectfully submitted.

I have the honour, to be, Sir,
Your most obedient servant,

W. H. JACKSON, Lieut.-Colonel.

Deputy Adjutant-General, Military District No. 4.

The Adjutant-General of Militia,
Ottawa.

MILITARY DISTRICT No. 5.

HEAD-QUARTERS,

Montreal, December 1st., 1876.

SIR,—I have the honour to forward for your consideration, and for submission to the Major-General commanding, the Annual Report of Military District No. 5, under my command.

The number of officers and men allowed to perform the annual drill for 1876-77, being under the nominal strength of the corps in the District, a selection was made, first, of corps desirous of being relieved from drill, and second, by relieving one troop of cavalry and one company of infantry from drill from each of the regiments or battalions that could not muster for battalion drill. The following corps did not drill, viz:—

The Cookshire, Sherbrooke, Stanstead, Compton and Sutton Troops of Cavalry, Montreal Brigade Garrison Artillery (6 batteries), St. John's Battery Garrison Artillery, No. 2 Company Engineers, Montreal; 51st Battalion (8 companies), three companies each of the 11th and 54th Battalions, one company each of the 21st, 52nd, 53rd, 58th and 79th Battalions, and the Eardley Independent Company.

It was thought that this reduction of five Troops of Cavalry, seven Batteries of Garrison Artillery, one Company of Engineers, and twenty Companies of Infantry—taking the remaining corps at the average strength of the same corps at the annual drill of 1875-76—would have brought the strength within the quota allowed for the District: 3,450. But the corps throughout the District have mustered stronger at drill this year than was anticipated, and the quota has been exceeded by 200 of all ranks. The number of horses has been very much reduced, out of nine troops of cavalry four only have drilled, being a saving of 175 horses, which will more than compensate for the pay of the men over the quota.

CAVALRY.

The Montreal, St. Andrews and Huntingdon Troops drilled at their own headquarters; troop drill. The Missisquoi Troop, by special permission, was allowed to drill in camp with the 60th Battalion at St. Armands. All these troops mustered in full strength and passed a creditable inspection; the horses were well fitted for cavalry service.

FIELD BATTERIES.

The Montreal Field Battery, under the command of Lieut.-Colonel Stevenson, performed the annual drill of twelve days in camp, Montreal West, commencing on the 13th and ending on the 25th September. The battery was inspected by Lieut.-Colonel Strange, Inspector of Artillery, and Lieut.-Colonel Fletcher, Deputy Adjutant-General. The gun practice was performed at Laprairie under the superintendence of Lieut.-Colonel Strange. The practice was considered satisfactory.

The Shefford Field Battery, under the command of Major Amyrauld, went into camp at Granby on the 1st and broke up camp on the 12th September. The battery was inspected by Lieut.-Colonel Strange on the 11th September; he was present at gun practice on that day, and expressed himself satisfied with the result. The Deputy Adjutant-General inspected the camp on the morning of the 12th before the camp broke up.

Both of these batteries mustered strong—the Shefford Battery full; fine able-bodied and intelligent men. The horses were well fitted for the work. The guns and equipment were all in good order. The movements and practice of both batteries at inspection shewed that they were thoroughly efficient.

The Garrison Artillery did not drill.

ENGINEERS.

No. 1 Company Montreal Engineers, under Lieut. Berry, drilled at head-quarters, and mustered with the brigade for celebration of Her Majesty's birth day 24th May, and for the Major-General's inspection on the 1st November. The company is efficient in infantry drill.

RIFLES AND INFANTRY.

City Corps.

The 1st Battalion "Prince of Wales" Rifles, 3rd Battalion "Victoria Volunteer" Rifles, 5th Battalion "Royal Fusiliers" and 6th Battalion "Fusiliers" of Montreal, performed the annual drill by battalions, and drilled regularly weekly from 1st May to 1st December. The drill performed by these corps exceeded by far the number of days for which pay is claimed. Their efficient performance of brigade and battalion movements at the inspection of the brigade by the Major-General commanding on the 1st November, and at the inspection by battalions on their private parades by the Deputy Adjutant-General, proved that the several corps had made good use of the time spent at their weekly drills.

Two brigade parades were held, the first on the anniversary of Her Majesty's birthday, 24th May. The brigade mustered on the Champ de Mars, of all arms and of all ranks 870, and marched to Fletcher's field, formed in line and fired a *feu de joie*, marched past, and afterwards went through a number of field movements, skirmishing and firing, all performed in a very creditable manner. The Montreal Field Battery, under the command of Lieut.-Colonel Stevenson, fired a salute from the Mountain Plateau, and a detachment of the Garrison Artillery a salute from St. Helen's Island.

The second brigade day was held on the 1st November, on the Champ de Mars, when the Troop of Cavalry, No. 1 Company Engineers, 1st and 3rd Battalion Rifles, and 5th and 6th Battalions Fusiliers mustered, of all ranks, 1,082, for the Major-General's inspection. After inspection the corps marched past in column, quarter-column, and quarter-column at the double; wheeled into line of columns. The limited space of the parade ground, and the presence of the immense crowd, prevented any other movements from being performed. The General was pleased to express himself satisfied with the soldierlike appearance of the officers and men, and the efficient manner in which the movements were performed. The Rifles and Fusiliers appeared in new "head dresses," purchased by the corps; the 1st Prince of Wales' Rifles, with a neat cloth shako; the 3rd Battalion Victoria Rifles, a fur busby; the 5th and 6th Fusiliers, bear-skin caps, similar to those worn by the Fusiliers of the line.

The want of a drill-shed is very much felt in Montreal. The Fusilier Regiments drill in the City Hall, and the Rifle Regiments in the Victoria Skating Rink, hired for the purpose by the officers, an item of expense which cannot well be borne by them. The existence of an efficient brigade of all arms—of the nominal strength of 2,050—such as Montreal West possesses, is truly deserving of more encouragement than it has lately received from the city authorities. The \$12,000 owing the Militia Department by the corporation on the old building, would go far towards the erection of a suitable building for drill purposes. If the city would give a site, the above amount, with an equal sum from the Government, would erect the building. An earnest effort should be made during the coming year to have this accomplished.

Rural Corps.

The only battalion that drilled in camp was the 60th "Missisquoi" Infantry, under the command of Lieut.-Colonel Rowe. This battalion, with the Missisquoi Troop of Cavalry, under command of Capt. Bush, applied for permission to perform the annual drill in camp, and supply their own rations and forage, if the Department would supply tents and blankets. This the Department kindly granted. The camp was formed at St. Armands on the 28th August, and was inspected by the Deputy-

Adjutant General on the 1st September. The camp was well pitched on a fine field with good water supply, at about a mile from the railway station. The battalion and troop were put through field movements, skirmishing and firing, all of which was creditably performed.

The "St. Andrews" Troop of Cavalry and Huntingdon Troop of Cavalry drilled at Troop Headquarters.

The 11th Battalion, "Argenteuil Rangers;" the 21st Battalion, "Richelieu Light Infantry;" the 50th Battalion, "Huntingdon Borderers;" the 52nd Battalion, "Brome" Infantry; the 53rd Battalion, "Sherbrooke" Infantry; the 54th Battalion, "Richmond" Infantry; the 58th Battalion, "Compton" Infantry; the 79th Battalion, "Shefford Highlanders;" Drummondville Independent Company; Wakefield Independent Company, and Aylwin Independent Company, drilled by companies, at company head-quarters, during the months of September and October, and were inspected by the Deputy Adjutant-General and the Brigade Majors. The companies, with two or three exceptions, were all full, the men able bodied and fit for duty. A number of the corps have the clothing well worn, and with most of them there is a deficiency in forage caps; the want of a good head-dress takes away very much from the appearance of soldiers on parade. The arms and accoutrements are in fair condition, but in every battalion there are several rifles out of repair; it would be well if means were sanctioned to have these rifles sent to Montreal this winter, to be repaired by a competent armourer, ready for service in the spring if required.

The drilling by companies at their own head-quarters is less expensive than that of drilling by battalions in camp, but it does not afford so good an opportunity for officers, non-commissioned officers and men, to acquire a knowledge of the duties required of them if called out for service. Camp drill is popular throughout the district.

TARGET PRACTICE.

The target practice has been performed by all the corps in possession of targets and ranges, but some of the companies have no targets or safe ranges at company head-quarters. The tabular returns shew the figure of merit of each corps, so far as returns have been received.

RIFLE ASSOCIATIONS.

There are nine Rifle Associations in the District, all carried on efficiently and with spirit. These Associations, as mentioned in last year's report, have proved of real service in teaching officers and men the value of the efficient rifle placed in their hands. And the success of the competitors from the District, at the Provincial matches at Point St. Charles, and the Dominion matches at Ottawa this year, shews that good use has been made of the practice afforded them at the District competitions. Six out of the seven competitors for Wimbledon from the Province of Quebec are from this District.

STATE OF THE DISTRICT.

An excellent spirit prevails throughout the district in favour of the Active Militia. Several offers have been made lately to raise new companies. In case of an emergency every company in the force would be filled at once up to its nominal strength. There is also a loyal and willing spirit existing in the force itself. At the first alarm every man would be found at his post.

The officers of the 53rd "Sherbrooke" Battalion, under the command of Lieut-Col. Ibbotson, have, with some of the friends of the force, formed a Military School at Sherbrooke, for the purpose of practicing and acquiring a knowledge of drill and military duties. The school meets weekly for practice in the drill-shed. This action of the 53rd is commendable and deserves encouragement.

I beg to bring under your notice, and to acknowledge with thanks, the cordial support and efficient aid in the work of the District, received from Lieut-Colonels

Bacon and Aylmer, Brigade Majors, and Major Amyrauld, District Paymaster. I beg also to thank Major Pope, Provincial Storekeeper, for his prompt attention to requisitions for camp equipage and stores.

STRENGTH of Corps at Annual Drill for 1876-77.

Corps.	Officers.	N. C. O. and Men.	Horses.
Montreal Troop Cavalry	3	31	34
St. Andrews do	2	33	35
Huntingdon do	2	33	35
Missisquoi do	2	33	35
Montreal Field Battery.....	3	52	28
Shefford do	6	75	28
No. 1. Company, Engineers, Montreal.....	2	39	
1st Battalion, "Prince Wales" Rifles, Montreal.....	19	242	
3rd do "Victoria" do do	18	252	
5th do "Royal" Fusiliers do	25	252	
6th do "Montreal" Fusiliers	17	250	
11th do "Argenteuil Rangers"	14	203	
21st do "Richelieu" Light Infantry.....	6	119	
50th do "Huntingdon Borderers"	19	328	
52nd do "Brome" Light Infantry.....	15	210	
53rd do "Sherbrooke" Infantry.....	11	207	
54th do "Richmond" do	4	74	
58th do "Compton" do	23	368	
60th do "Missisquoi" do	19	216	
79th do "Shefford Highlanders".....	17	281	
Drummondville Independent Company.....	2	42	
Wakefield do do	2	42	
Aylwin do do	2	35	
Total.....	233	3,417	195

I have the honour to be, Sir,
Your obedient servant,

JOHN FLETCHER, Lieut.-Colonel.
Deputy Adjutant-General, Military District No. 5.

The Adjutant-General of Militia,
Head-quarters, Ottawa.

MILITARY DISTRICT No. 6.

MILITIA BRIGADE,

Montreal, 4th December, 1876.

SIR,—In conformity with your instructions, I have the honour to report for the information of the Major-General commanding, that in accordance with the General Orders (10.) 18th May last, I have selected by lot, on the 21st June last, in the presence of a Field Officer of the Active Militia, the following corps for the annual drill 1876-77:—

	Officers and Men.
64th Battalion (Lieut.-Col. Prudhomme.).....	270
65th Battalion (Lieut.-Col. Labranche.)... ..	270
80th Battalion (Major de Foy.)... ..	240
Three River Provisional Battalion (Major Lambert.)	215
Joliette Provisional Battalion (Lieut.-Col. Sheppherd.).....	215
St. Hyacinthe Provisional Battalion (Major Doherty).....	170
Arthabaska Independent Company	45
Wotton Independent Company.....	45
Total.....	1,500

That on the 8th July last the different companies of the 64th Battalion, Lieut.-Col. Prudhomme, had completed their eight days drill, and they were, in consequence, inspected in the following order:—

No. 3 Company was inspected the first, on the 8th of July.

Present on parade—1 officer and 42 men.

After the manual and firing, the company went through a few wheelings and some company drill on the move. This was done in a creditable manner. The men looked well and had a soldierlike appearance. The arms and accoutrements were in good order.

On the same day No. 4 Company was inspected.

Present at inspection—2 officers and 42 men.

They were put through manual and firing, formation of fours, wheelings and some skirmishing. This was fairly done considering the short period for drill.

The arms and clothing were in good order.

On the 9th of July No. 5 Company was inspected.

Present at inspection—2 officers and 42 men.

Manual and firing were gone through; wheeling and company drill on the move.

The arms and accoutrements were in good order.

On the 10th July No. 6 Company was inspected.

Present at inspection—2 officers and 42 men.

Manual and firing, wheeling and company drill on the move.

Arms and accoutrements in good order.

On the 11th July No. 1 Company was inspected.

Present at inspection—2 officers and 42 men.

Proving and inspecting of company and arms; manual and firing were gone through, after which formation of fours, wheelings, &c., &c.

The arms and accoutrements were in good order.

On the same day No. 2 Company was inspected.

Present at inspection—2 officers and 42 men.

Proving and inspecting of company and arms; manual and firing were gone through, after which formation of fours and wheelings.

The arms and accoutrements were in good order.

80th Battalion—Major de Foy.

- On the 13th July No. 1 Company of this battalion was inspected.
 Present at inspection—2 officers and 40 men.
 All able bodied and good men; the arms were clean; clothing and accoutrements in a fair state; company drill fairly performed.
- Same day No. 2 Company was inspected.
 Present at inspection—1 captain; 1 adjutant, and 42 men.
 This is a good company: all good men. Company drill was fairly performed; arms were clean; clothing and accoutrements in a fair state.
- On the 14th July No. 3 Company was inspected.
 Present at inspection—2 officers and 40 men.
 Arms clean and in good order; accoutrements and clothing in good order; company drill was fairly performed.
- On same day No. 4 Company was inspected.
 Present at inspection—2 officers and 40 men.
 This is a good company; strong men. Company drill fair; arms in good order; clothing and accoutrements in a fair condition.
- On the 15th November No. 5 Company was inspected.
 Present at inspection—1 officer and 40 men.
 This company is a good company, composed of active young men. They drilled fairly; arms in good order; clothing new; accoutrements in good condition.
- On the same day No. 6 Company was inspected.
 Present at inspection—2 officers and 37 men.
 This is also a good company. Arms, clothing and accoutrements in good order; company drill fairly performed.

Three Rivers Provisional Battalion.

- Staff—1 Major commanding; 1 Paymaster; 1 Adjutant; 1 Quartermaster; 1 Surgeon. Total—5.
- On the 18th July I inspected No. 3 Company, Berthier (*en haut*).
 Present at inspection—2 officers and 42 men.
 This is a good company. Arms, clothing and accoutrements in a fair state. After the general salute the manual and firing was gone through. Company drill was fairly done.
- On the 19th July I inspected No. 2 Company at Rivière du Loup (*en haut*).
 Present at inspection—2 officers and 42 men.
 This is a good company; strong, healthy men. Arms, clothing and accoutrements in good order. Company drill fairly performed.
- On the 20th July I proceeded to Rawdon and inspected No. 5 Company there.
 Present at inspection—2 officers and 41 men.
 This is a very good company, all Irishmen; strong and healthy men. Arms, clothing and accoutrements in good order; company drill well performed.
- On the 24th July I inspected No. 1 Company, Berthier (*en haut*).
 This is a good company; the greater number are strong healthy men. Arms, clothing and accoutrements in a fair state. Company drill and skirmishing fairly performed.
- Present at inspection—2 officers and 40 men.
- On the same day I inspected No. 4 Company.
 Present at inspection—2 officers and 42 men.
 This is a good company, strong men. Arms, clothing and accoutrements in fair order; company movements were well performed.

Provisional Battalion, Joliette.

- Staff—1 Lieut.-Col.; 1 Surgeon; 1 Paymaster; 1 Quartermaster. Total—4
- On the 20th July I inspected No. 1 Company at Joliette.

Present at inspection—2 officers and 42 men.

This is a good company; well up in company drill. Arms, clothing and accoutrements were in good order; skirmishing movements well performed.

On the same day I proceeded to Rawdon to inspect No. 5 Company there.

Present at inspection—2 officers and 42 men.

This is a good company, all Irishmen. They are well up in company drill. Their arms, clothing and accoutrements were in fair condition.

On the 21st July I proceeded to inspect No. 2 Company, "Ste. Jacques de L'Achigan."

Present at inspection—2 officers and 42 men.

This is a good company. Arms, clothing and accoutrements in good order: company drill fairly performed.

On the same day I inspected No. 3 Company, "Ste. Melanie D'Aillebout."

Present at inspection—2 officers and 39 men.

The men are good, healthy young men, but did not seem to understand sufficiently the word of command. It is true that they are all French Canadians and cannot speak English. Some company movements were fairly performed. The arms, clothing and accoutrements in a very fair state.

On the 30th August I inspected No. 4 Company. (Ste. Elizabeth.)

Present at inspection—2 officers and 42 men.

This is a good company; the men are strong and healthy. Company drill was fairly gone through, at least some of the company movements.

The arms, clothing and accoutrements are in a pretty fair state.

Provisional Battalion, St. Hyacinthe.

On the 3rd of November I inspected No. 2 Company at St. Pie.

Present at inspection—2 officers and 37 men.

This is a good company; men strong and active. Arms, accoutrements and clothing in good order. They were put through manual and firing, and a few company movements, which they executed in a fair manner.

On the 4th November I proceeded to St. Simon to inspect No. 3 Company.

Present at inspection—2 officers and 37 men.

This is another good company. Arms in good order; clothing and accoutrements in a fair condition.

Manual and firing; formation of fours; wheelings and a few other company movements were satisfactorily performed.

I am sorry to have to report that No. 4 Company (the Sorel Company) did not drill this year. During the summer the captain was in ill health; he had even the intention of resigning, but upon reconsideration thought he would drill his company this autumn. However, the 1st December has arrived and that has not been done, very much to my regret.

During the month of August the St. Hyacinthe (No. 1 Company) performed the eight days' drill, but before I could inspect it the great fire of the 3rd September last consumed the captain's house and premises. The arms, clothing and accoutrements were stored there, part of them were burnt, part of them were lost or stolen.

According to the "Acquittance Roll" signed by the Captain, the Paymaster of the battalion, the Major commanding the battalion, two officers and forty-two men performed this drill.

In obedience to a special order from the Major-General commanding, I proceeded to inspect this company on the night of the 29th November.

Present at inspection—2 officers and 28 men.

They had neither arms, military clothing, or accoutrements. All, save a few rifles, had perished as I have before stated. I will forward you, in a few days a special report upon this head.

The captain told me that he had not been able to find a hall or large room for

the inspection. The consequence was the company had to be inspected out doors in a yard, with a few lights here and there.

It was a bitter cold night, the men were half clad and shivering. They had no arms, and there was no space for any kind of movement.

I counted 2 officers and 28 men.

The captain said the balance of his men were away, some working in the States, others with farmers away in the country. I then, after addressing a few words to them, dismissed the company, which gave three hearty cheers for the Queen.

It was a pitiful sight to see such a lot of fine young men totally ruined, some having lost their houses and homes with all their clothing, others all they had in the world.

The "Wotton" Independent Company, Captain Richard, was not prepared to drill. The St. Jean Baptiste Independent Company, Captain Simpson, was to have drilled in its stead. All was ready, when the Captain (Simpson) fell into bad business and had to take refuge on the other side of the line. It was then too late to find another company to take their turn.

67th Battalion or "Mount Royal Rifles."

This fine corps was inspected on the 15th November.

Present at Inspection.

Staff.....	3
Company Officers.....	9
Non-Commissioned Officers and Privates.....	249

This is a really good corps, and is destined under the able command of Lieut.-Col N. Lebranche, to be second to none in the force.

The arms, clothing and accoutrements are in good order. This corps has no forage caps or head dress of any kind—those the men had on at the inspection were borrowed for the occasion.

I am happy to see that the Department is going to furnish them with Kilmarnock forage caps.

At the inspection several battalion movements were gone through in a creditable manner.

Rifle Associations.

There is as yet only one Rifle Association in the District; but I have good reason to expect that two new ones will be formed this next year.

A rifle match was held at Joliette, Military District No. 6, on the 20th and 21st September last. Return forwarded.

I regret that the offers made by different parties in the District to raise cavalry troops and form batteries of artillery have not been accepted by Government, yet this District has not its quota of men.

The events which are foreshadowed in the complicated questions that agitate the civilized world just now makes one almost regret that every second man in this new Dominion of ours has not some kind of military training.

Our position is rather an exceptional one. With a large area of country to protect and defend, a great and powerful nation for neighbour, far from the Mother Country, circumstances might arise that would cause the country to regret its apparent indifference as to the proper arming and training of its inhabitants.

The Major-General commanding, in his remarkable report of 1st January, 1876, to the Honourable Minister of Militia and Defence, very properly says, at page x: "The moral power of a nation without being backed by physical power, would have but small influence, if any, in the politics and the councils of the nations of the world; but when supported by physical power, it must possess in a corresponding degree the weight which strength can command, and so tend to peaceful solutions of questions which might otherwise drift into an opposite direction."

Since my last annual report a reduction has taken place in the Brigade Staff of this District.

The services of Brigade-Major Lieut.-Col. Hanson, and Lieut.-Col. Lefebvre de Bellefeuille have been dispensed with. I cannot conclude this report without thanking both these officers for the valuable aid they have invariably given me in carrying out the orders received from head-quarters, and for the zeal and promptitude with which they were ever ready to promote the interests of the force.

have the honour to be, Sir,

Your obedient servant,

A. C. DELOTBINIERE-HARWOOD, Lieut.-Colonel.

Deputy Adjutant-General, Military District No. 6.

The Adjutant-General of Militia,
Ottawa.

MILITARY DISTRICT No. 7.

HEAD-QUARTERS, QUEBEC,

16th December, 1876.

SIR,—I have the honour respectfully to lay before you, for the consideration of the Major-General commanding, and in accordance with the General Order of the 18th May, 1876, my Annual Report on the state of the Militia in the District under my command for the year 1876-77. Annexed will be found an appendix shewing the corps which have performed their annual drill.

The total nominal strength of the force which was allowed to drill and to receive pay for the year 1876-77, was 2,300 officers, non-commissioned officers and men.

The total actual strength which was mustered at the time of the annual drill was 2,120 of all ranks.

Out of the number balloted which have failed to comply with the General Order of the 30th April, 1875, are No. 2 Troop of the Quebec Cavalry, and No. 6 Company of the 17th Battalion.

The Active Militia of the District which turned out for annual drill consists of the following corps, viz:—

Quebec Field Battery.			
Gaspé Battery Garrison Artillery.			
8th Battalion Rifles—5 companies.			
9th do		do	
17th Battalion Infantry—3 companies.			
23rd do	3	do	
55th do	4	do	
61st do	3	do	
70th do	5	do	
Portneuf do	2	do	
Dorchester do	3	do	
County, Quebec do	2	do	
Kamouraska do	3	do	
Temiscouata do	3	do	
Rimouski do	2	do	
Charlevoix do	3	do	
St. Raymond Independent Company.			

Artillery.

The Quebec Field Battery, under the command of Lieut.-Colonel LaFontagne, during the absence of Major Baby, went through a course of 12 days' drill in camp at Lévis. This corps was mustered by me and inspected by Lieut.-Colonel Strange, Inspector of Artillery.

The Gaspé Battery of Garrison Artillery, under the command of Major Slous, performed eight days' drill, and was inspected by Lieut.-Colonel LaMontagne, Brigade Major, accompanied by Capt. Duchesnay of "B" Battery, School of Gunnery. This corps was reported very efficient.

Infantry.

The rural infantry corps performed the annual drill at their respective company head-quarters. Notwithstanding that the period allowed was very short, and considering that two days had to be taken for rifle practice, the results obtained, contrary to my expectations, were very satisfactory.

The 8th Battalion Rifles drilled at head-quarters, and were inspected by the Major-General commanding, who expressed himself highly satisfied with the steadiness, cleanliness and very efficient manner with which the whole movements were performed.

The 9th Rifles also performed drill at head-quarters and were inspected by me. I found the officers, non-commissioned officers and men thoroughly understanding their work, and the general appearance of the battalion, and the efficiency in drill were highly commendable. This battalion possesses a very good brass band.

The 8th Battalion have an efficient band of fifes and drums.

Rifle Associations.

There are nine Rifle Associations in this District; all worked efficiently; they are as follows, viz:—

		Moneys Expended.
Quebec Stadacona Rifle Association	.....	\$682 00
8th Battalion	do	126 00
17th do	do	75 00
55th do	do	297 00
70th do	do	88 00
County of Quebec	do	185 00
do Montmorency	do	50 00
do Temiscouata	do	225 00
do Rimouski	do	95 00

The total amount thus expended in the District being \$1,823 for the year 1876-77.

Military Schools.

The difficulty of filling vacancies occurring from time to time in the different corps of the Active Militia, renders the opening of the Military Schools at Quebec of an urgent necessity. The number of passed Military School cadets having greatly diminished, officers have to be appointed provisionally owing to the want of means for qualifying for commissions.

State of Arms, Accoutrements and Clothing.

The arms and accoutrements are in a fair state, but nearly the whole of the arms of rural corps would require to be taken into store for repairs.

The guns, rifles, swords, harness and saddlery in the Quebec Armoury are in very good order. The very good condition in which they were found merited the praises of the Major-General commanding, while inspecting them on his last visit here.

I have much pleasure in bringing to your notice and favourable consideration the efficient support I have received from the Staff-officers of my District.

I have the honour to be, Sir,
Your obedient servant,

T. J. DUCHESNAY Lieut.-Colonel.
Deputy Adjutant-General, Military District No. 7.

The Adjutant-General of Militia,
Ottawa.

MILITARY DISTRICT No. 8.

PROVINCE OF NEW BRUNSWICK,
HEADQUARTERS, FREDERICTON,
5th November, 1876.

SIR,—In compliance with the instructions contained in General Orders (10) of the 18th May, 1876, last, I have the honour to submit this my Report on the state of the Militia of the District under my command, for the military year 1876-77.

The nominal strength of the force in the District, as reduced in General Orders above quoted, is 154 officers and 2,107 non-commissioned officers and men. The total actual strength of the force, when mustered at the time of the annual drill of the year 1876-77, was 113 officers and 1,447 non-commissioned officers and men. Forty officers and 546 non-commissioned officers and men were relieved by lot from performing their annual drill.

The Active Militia of the District consists of the following corps, which at the time of the annual drill turned out as follows:—

Corps.	Officers.	N. C. O. and Men.
8th Regiment of Cavalry, Lieut.-Col. Saunders (5 troops; 2 troops relieved.).....	14	162
Newcastle Field Battery, Brevet Major Call.	4	60
Woodstock Field Battery, Capt. Dibblee.....	3	76
New Brunswick Brigade Garrison Artillery, Lieut.-Col. Foster (4 batteries; 1 battery relieved.).....	11	164
New Brunswick Engineer Corps, Capt. Perley (relieved.)		
62nd Battalion, Lieut.-Colonel Blaine (6 companies)	16	227
67th Battalion, Lieut.-Colonel Upton (6 companies; 4 companies relieved.).....	18	249
71st Battalion, Lieut.-Colonel Marsh (4 com- panies; 1 company relieved.).....	16	168
73rd Battalion, Major Sheriff (3 companies; 2 companies relieved.).....	12	126
74th Battalion, Lieut.-Col. Beer (4 companies; 2 companies relieved.).....	15	139
Dalhousie Infantry Company, Capt. Barberie.	2	39
Deer Island Infantry Company, Capt. Lloyd (drill not completed.)		
St. Stephen Infantry Company, Lieut. Stewart (drill not completed.)		
St. George Infantry Company.....	2	37
Total.....	113	1,447

The past year has been one of almost universal financial depression, and it has been found necessary to practice economy on all sides—economy in the case of the Active Militia, it is hoped, consistent with the maintenance of efficiency.

Hence, in order to bring the expenditure for drill and training within the appropriation made by Parliament, the strength of the force to be drilled and paid for eight days had to be limited. The ballot had to be resorted to, not for the purpose of completing the quota for each District, but temporarily to reduce its numerical strength. And the good sense of officers commanding corps thus reduced had to be relied upon, not in vain, under the circumstances.

And while it is both my duty and pleasure to report favourably in most instances on drills, however limited, carefully performed, on good use being made of field and garrison guns and rifles, every branch of the service looks forward to the speedy return to the established system of which sufficient time may be allowed to train the soldier in matters of discipline, drill, and appearance under arms, all leading up to the last stage of the annual drill, viz: target practice.

During the present year there could necessarily be but little preparation for target practice; and the more credit is due, I conceive, to those corps, and they are many, that, having been instructed in preliminary drills, made good shooting; and to those corps that in the true spirit of volunteering performed both drill and practice without money payment.

Happily, corps of field artillery were not included amongst those limited to eight days drill. These corps assembled in camps and performed twelve days drill. The field artilleryman having in addition to many of the duties required of the infantry soldier, important though they be, the care of guns and horses; and to ensure good shooting, the knowledge of laying guns and handling them with readiness must be acquired. It may be added, that the knowledge of ammunition cannot be learned in a day, especially, as has been proved at the summer practice, the bursting points at various ranges of shrapnels.

It is to be hoped, however, that another very important arm—the cavalry—may in future be allowed a similar privilege to that allowed field artillery as regards the limit of the annual drill in camp. The cavalryman has also, besides many of the duties required of the infantry soldier, the care of his horse; he is, so to speak the “eyes and ears” of an army. He must have his intelligence developed in a peculiar way by careful training. In the event of active service he would probably be the first required to act, and it is I think of primary importance that his training should be effective.

I may here state that so eager was the 8th Regiment of Cavalry, Lieut.-Colonel Saunders, to keep in view the object for which it had been carefully trained for many years past, and to prevent deteriorating in efficiency, the regiment assembled at its head-quarters, and no camps being authorized this year, except for field artillery, bivouacked on the grounds of the Lieut.-Colonel, both officers and men availing themselves of such means of shelter as the place afforded, and at my inspection of the corps on the 15th July, it was evident that no pains had been spared to maintain in every particular the efficiency for which the regiment has been frequently and justly commended. There was no lack of discipline, the conduct of the men was reported as excellent, and it would be hard to disturb or destroy its *esprit de corps*.

It is, however, impossible for the routine of regimental duties to be strictly carried out when men are thus assembled for a few days at local head-quarters and not in camp.

The same argument may be adduced, but with greater effect, against drills of country corps being year after year in succession performed at company head-quarters.

The captain of the company at such drills finds it difficult for several hours daily to render squad and company drills interesting and instructive, it is also difficult to ensure the *punctual* attendance of the men at drill, and when assembled to attain *steadiness in the ranks* as the foundation of efficiency. The Battalion Staff (Lieut.-Colonel or Major) is probably not within easy reach to support and advise, the District Staff is elsewhere employed except at the time of inspection, and the captain is in consequence left to his own resources. I am far from saying that this state of things, as far as infantry corps are concerned, is not at times productive of good results. Officers hereby acquire confidence in their ability to impart instruction without aid, and both officers and men are rendered more self-reliant, drill in camp will be more appreciated when authorized, and the proof of the attention paid to these local drills will be shewn in the degree of efficiency displayed by the respective corps when assembled in camp.

For these and other reasons it is, I conceive, very essential that it be made

known, in a similar way as the enrolment of the Reserve Militia is made known years before it takes place in general terms as to the manner in which the annual drill of the Active Militia is to be performed, and I respectfully recommend that battalion camps be authorized for the year following the drill at company headquarters and that afterwards for the year succeeding that year the force be assembled in brigade or divisional camps. This three years' course of training to be repeated continuously.

Among the advantages to be derived from this system are the following—

1. A larger proportion than heretofore of the best class of young men in the country would, I am convinced, join the ranks for this three years' service, and on retirement their places would be filled by others.

2. The superstructure of the force being rendered complete by the establishment of the Military College, the succession of steps, from "A." and "B." Batteries and the force in Manitoba to the last class of the Reserve Militia, would triennially become more and more efficient; the Reserve Militia, in its different classes, would be largely represented by three years' past service men, ready and willing to support the Active Militia in the hour of need, and the active force would in turn send its most intelligent members from time to time to the Schools of Gunnery, or to the Brigade Schools built on that efficient basis, to be returned to their corps respectively, after a thorough course of instruction, to serve as models to their brethren.

By means such as these, without much increased expenditure, without any change of system, without having to resort in a hurry, perhaps too late, to the migratory class for aid in the hour of danger, without having to keep up an expensive standing Army, the mainstay of the military structure—the Active Militia force—would, I conceive, continue to stand on the surest foundation, and to be worthy of the confidence of the people of Canada, and it is a lesson that every nation that has built up its force to any extent on the Prussian model, excellent though it unquestionably be, should bear in mind that "imitations of Prussia are apt to be very deceptive; they are sure to give a large nominal force, but it is only when the system has been perfected by long and laborious efforts that it escapes from the two defects that mark its infancy—the want of drill and discipline in the men, and the want of experienced leaders, and especially of non-commissioned officers."

Aid to the Civil Authorities.

Whilst I was employed on an inspection tour in Carleton, Victoria and Madawaska Counties, in July last, I received the intimation that a disturbance at St. John, on the 12th of that month, was expected. I at once sent the Brigade-Major, who was on duty in Carleton County at the time, to St. John, with instructions, in the event of the services of the force being required.

Subsequently, Lieut.-Colonel Foster, the senior officer of the Active Militia at St. John, received the requisition of the chief magistrate, calling for a portion of the force of that city, (130 men with proper proportion of officers) to aid the civil power on the 12th July.

The requisition was promptly acted upon by Lieut.-Colonel Foster, and on the 26th July I submitted, for the information of the Major-General commanding, and the Honourable the Minister of Militia and Defence, that officer's report, (A) showing the steps taken by him and the force under his command, and bearing testimony to the "extremely good conduct of both officers and men during the day." A letter of thanks was afterwards communicated to Lieut.-Colonel Foster.

I also submitted to head-quarters the letter (B) of the Mayor of St. John, conveying thanks to Lieut. Colonel Foster for the "promptness" with which the force responded to the call in aid of the civil authorities.

Military Resources.

On the 4th July last, in compliance with instructions received from the Adjutant-General, I submitted a lengthened report on the military resources of the District

(New Brunswick) under my command, for use at head-quarters in regard to men, horses and provisions, and means of transport and conveying information respecting the strong features of the country; and, besides, as to any military particular that may tend to the defensive power of this District, and shewing the assailable points of the same.

I also submitted a most valuable outline map of my District, prepared by Capt. Henry Perley, commanding New Brunswick Engineer Corps, shewing the county divisions, leading roads, railways and water communications, harbours, &c., and accompanied by information in writing relating thereto, for all of which Capt. Perley received the thanks of the Major-General commanding, as well as my own acknowledgments.

I take this opportunity to express my best thanks to L. W. Bailey, Esq., Ph. D., Professor of the Fredericton University, for the valuable report with respect to the physical features and economic minerals of New Brunswick, kindly furnished by him; and also to Edward Jack, Esq., for the information as to the useful woods of the Province, jointly supplied by him and Dr. Bailey.

I also received much information from the officers of the Public Works and Crown Land Departments of New Brunswick, especially from Capt. A. G. Beckwith and Ensign Loggie, 71st Battalion, respectively.

Reduction of District Staff.

On the 19th May last the resignation of Lieut.-Colonel D. R. Jago, Assistant Inspector of Artillery, was accepted, and he was permitted to retain rank upon retirement.

As regards the resignation of this officer, I, personally, am unable adequately to express my sense of regret.

The artillery force of the Province, for whose improvement he had worked most assiduously, in conjunction with its officers, for many years past, with marvellous success, has lost the services of a true friend, and the community generally, I may add, much regret the departure from our midst of an excellent citizen.

We rejoice to know, however, that Lieut.-Colonel Jago has the strongest ties to this country as a Canadian, and I have his assurance that should his presence be required in New Brunswick in the hour of danger, or to assist in the training of the force thereof, no time will be lost on his part in placing his services at the disposal of the Major-General commanding.

On the 2nd June last a reduction of the Brigade Staff of the militia having been ordered, the services of the following officers of this District, who were permitted to retain their rank on retirement, were dispensed with, viz.:—Lieut.-Colonel J. A. Inches, Brigade Major 1st Division; Lieut.-Colonel C. McCulley, Brigade Major 3rd Division.

As to the retirement of Lieut.-Colonel Inches—in expressing my sincere regret that such a step has been deemed necessary, I think it due to that officer to repeat that which I have already stated officially with respect to his services:—

9th February, 1875 “From the period—early in 1866—when he commanded a force of Volunteer Militia at St. Stephen, at the threatened Fenian invasion (for which his services were acknowledged in a special manner” by the then Commander in Chief, Hon. A. Gordon) to the present time there has scarcely been an annual report submitted in which the force of the 1st Brigade Division, in Lieut.-Col. Inches charge, has not been commended both as regards its complete numerical strength, and its efficiency, and it may be observed in my annual report for 1874, as well as that of 1875, that I took occasion at the breaking up of the camps in his Brigade Division; at St. Andrews, to advert in my brigade orders to the satisfactory state of efficiency of the force, and I subsequently reported favourably thereon, as “reflecting high credit upon the Brigade Major and officers commanding corps.”

Lieut.-Colonel McCulley had also served long in the Militia force, and as President of the Northumberland County Rifle Association, took much interest in rifle practice. He did his best, moreover for the good of the force. Under the new regime—with reduced staff (although this District extends over a large area, and corps are in

many instances widely separated) with zeal and activity on the part of the Brigade Major, with promptitude and alacrity on the part of the District Paymaster and Storekeeper, and with forethought and intelligence on the part of officers commanding corps in the discharge of their important duties, respectively, I entertain no doubt that the duties of this District will be as correctly performed in the future as I assume they have been in the past.

And here I must express my acknowledgments to the Staff and to officers commanding corps for the valuable support and assistance they have invariably accorded me in the discharge of my duties as Deputy Adjutant General.

Examinations for Kingston Military College.

Three examinations for admission to Kingston Military College were held in this Province, commencing on 8th February, 2nd May and 5th December of this year, each examination occupying five and a half hours daily for four days consecutively. The following gentlemen have already been admitted to the College, viz:—

1. C. A. DesBrisay.
2. T. L. Reed.
3. Geo. E. Perley.

It is gratifying to know that in the order of merit on being approved for admission, as published in General Orders (11) of the 19th May last, Mr. C. A. DesBrisay, of Bathurst, N.B., is placed first on the list.

School of Military Instruction, Fredericton, N. B.

Staff: Commandant, Lieut.-Colonel G. J. Maunsell, D.A.G.; Adjutant, Lieut.-Colonel J. MacShane, B.M.; Examining Officer, Lieut.-Colonel J. Saunders, 8th Regiment Cavalry; Instructors, Captain McKenzie, and Sergeant Daniel.

Sixty-eight cadets obtained second-class certificates, 25 of whom were from York, 18 from St. John, 10 from Carleton, the rest were from other counties. So numerous were the applications for admission to the school, the Board of Examiners had to put an additional check to prevent the admission of an inferior class of men, and besides the usual certificate of commanding officers as to moral character, &c., a certificate was required shewing that the applicant is a member of the Active Militia, and likely to remain in the Province and become a useful member of the force. Thus an excellent class of cadets was secured, and the Adjutant and Captain McKenzie having done all in their power to ensure efficiency, I have no hesitation in stating that I consider the Military School at Fredericton last winter was more successful than were any of the previously conducted Schools.

An officer of the Active Militia in a recent non-official letter to me on this subject truly says, "there is no public expenditure more beneficial than the very moderate expenditure for the Schools (Military) and no portion of the people's money so directly gets back to the people." "You know"—he adds—"the great bulk of the cadets are from the rural districts, their families fixtures in the land, in all events they are British subjects and acquire during their stay at the schools, knowledge, technical or disciplinary worth far more than it costs, and to the average man it brings a sense of obligation to the country which affords it to him, that have its effect on him and those with whom he associates ever after."

In connection with this School, excellent as it unquestionably has proved, as a means of instructing officers and non-commissioned officers with the view to their being able to impart the knowledge so acquired to others. So numerous have been the cadets already passed through the school since it was originally established in 1869 (but few of whom have left the Dominion) I respectfully submit the desirableness of past cadets being triennially assembled as a battalion for brigade drill, in order to their improvement in the knowledge and practice of drill and field manoeuvres, their

services to be utilized in the mean time—in the intervening years—at company and battalion drill, as submitted in a previous suggestion.

It is also a question worthy, I think, of consideration, as to whether the time has not arrived for amending Section 33 of the Militia Law, by expunging that part of it authorizing Boards of Officers to grant certificates of fitness, as examination by such boards must necessarily be imperfect, and the means of acquiring military knowledge outside of schools of instruction is also by no means perfect, and both artillery and infantry schools have been long enough established to afford ample opportunity to all to qualify thereat.

Cavalry Schools.

The necessity for establishing a Cavalry School of Instruction is becoming annually more and more apparent. Cavalry officers have been for many years serving side by side with their brethren in the artillery and infantry, and while officers in these arms of the service have the opportunity of obtaining the necessary qualification to fit them for promotion, cavalry officers have no such opportunity afforded them.

I have recently (29th September, 1876) submitted to head-quarters a suggestion for supplying this want, which I earnestly hope may be favorably considered.

DOMINION ARTILLERY ASSOCIATION.

President, Lieut-Colonel Strange, Inspector of Artillery.

The formation, in February last, of this Association having for its object the development of gunnery skill and the dissemination of artillery knowledge throughout the Dominion of Canada, may be considered the commencement of a new era in the artillery branch of the service, although it is generally known that a New Brunswick Artillery Association had previously been formed.

Having been present at the competitions of the different batteries in this District, held under the rules of the Association, I am enabled to state that not only has the shot and shell practice been satisfactorily carried out, under circular No. 2, but the method of awarding prizes proportioned to each battery, "relatively to the amount of their subscriptions," seems to give much satisfaction.

I may add that rule No. 12, as to special *Provincial meetings* in their respective Provinces appears to meet with general approval.

RIFLE ASSOCIATIONS.

The Provincial Rifle Association (President, Capt. Perley, N. B. Engineers) continues to be conducted with success.

The principal features that marked the competition at Sussex in August last were. 1st. The gifts to the Association of two valuable cups by James Domville, Esq., M. P., and William Elder, Esq., M.P.P., respectively; 2nd. The adoption by the Council of the targets and system of marking invented by Lieut.-Colonel Beer, 74th Battalion, a vice-patron of the Association; and 3rd. Holding for the first time for some years a long range match.

Having been present in command during the whole of the competition, I can bear cheerful testimony to the fact that both Lieut.-Colonel Beer's targets and system of marking worked most satisfactorily, and as stated in the report of the Council of the Association regarding them "one thing these targets enjoy over all others, and that is their extremely moderate cost, coupled with the ease and facility with which they can be erected *anywhere*, and the perfect safety to those marking."

For the above reasons, I respectfully submit the desirableness of the adoption of these targets by the Militia Department for general service.

The Council calls attention to the fact that "this year the Association did not send a team to Ottawa," to compete at the Dominion Rifle Association Match, "five of its members, however, proceeded there at their own expense and were eminently

successful both in obtaining a fair share of the prizes offered as well as in three of them getting a place on the team which it is possible may proceed to Wimbledon next year."

In conclusion, it is satisfactory to observe that, while the Provincial Association continues to be attended with success, County Associations and Rifle Clubs generally are increasing in popularity; and it may be added that at St. John, in particular, the lists of prizes to be competed for this year, both at the County Association and Rifle Club matches, were much larger than in any previous year, thanks to the liberality of the citizens and the energy of certain members of the force; and the prizes were competed for, apparently, with much increased skill on the part of the marksmen.

The following Associations held competitions this year, returns of which will be duly submitted:—

1. New Brunswick Provincial Rifle Association.
2. Charlotte County Rifle Association.
3. St. John do do
4. Carleton do do
5. York do do
6. Northumberland County Rifle Association.
7. King's County do
8. 62nd Battalion Rifle Club.
9. New Brunswick Engineer Corps Rifle Club.
10. Headquarters Company Rifle Club.

An article in the "St. John Daily Telegraph" of 26th August last, on the subject of our Rifle Associations is so forcible and worthy of consideration, I cannot refrain from making the following extract therefrom:—

"The tenth annual meeting of the Provincial Rifle Association was brought to a close yesterday, and it is no exaggeration to say that it has not been exceeded in point of interest by any of its predecessors.

"The Provincial Association meeting occupies an intermediate place between the Dominion meeting and the various county meetings, and there can be no doubt that in point of importance it occupies an intermediate position also. The most important rifle association meetings are the local ones, where the marksmen of each county assemble for the purposes of competition. These are the true nurseries of good rifle shooting, and compared to them, the Dominion Association meetings, with all their expensive surroundings, are of comparatively small account. Without these competitions we should have no riflemen to compete either for Provincial or Dominion prizes, and military rifle shooting would become a lost art. The Provincial Association meeting, however, is very important, for it is a gathering of the best marksmen from the county competitions, and enables us to gauge very accurately the progress we are making in marksmanship. The result of the meeting at Sussex is so encouraging, for it shews that we are not deteriorating, and that the average figure of merit among our military rifle men is high. The management of the whole meeting by the officers who had it in charge was excellent, and the conduct of the men was good. The New Brunswick Militia who assembled to compete at Sussex were a credit to their Province, both as marksmen and as soldiers; and it is extremely gratifying to be able to say that they acquitted themselves in both these respects to the satisfaction of all who saw them."

Annual Target Practice.

The following Target Practice Regulations were published in my District Orders of the 14th June last, and the target practice was carried out with good results, as shown in the Tabular Returns herewith under the head of "Figure of merit" of corps.

"Target Practice Regulations.

(5.) Position and aiming drills should be carried out as far as the limited time for drill will permit, Corps armed with the Snider rifle, and supplied with govern-

ment ammunition will fire five rounds at 200 yards, five rounds at 400 yards, and five rounds at 600 yards. The 8th Regiment of Cavalry, armed with the Snider carbine, will fire five rounds at 200 and five rounds at 400 yards.

The target shall be four feet wide and six feet high at 200 yards, with bull's eye (circular in form) one foot diameter; centre, three feet diameter; outer, remainder of target. At 400 and 600 yards, target six feet wide with bull's eye two feet diameter; centre, four feet diameter; outer, remainder of target.

The value of hits to be: bull's eye 4, centre 3, outer 2. Position when firing: standing at 200, kneeling at 400, and any position at 600 yards, but without artificial rests.

Officers commanding corps are reminded that the greatest care should be taken to prevent accidents occurring whilst at target practice. Orders have already been issued on this important subject.

The Deputy Adjutant-General offers the following prizes for good shooting, viz., to the best shot in every battery, troop and company, silver rifle with stars; to the best shot in every brigade, regiment and battalion, silver cross rifles with crown."

Target practice having been carried out by the Active Militia for many years, and the shooting of the "marksmen" of the Province, as shown by the Returns of Rifle Matches, being excellent, I respectfully submit that in my opinion the time has come when a proportion of each corps may with great advantage be armed with Martini-Henri Rifle, with the view of improving the system of musketry training in the force and of developing the shooting powers of the soldiers.

I have had frequent occasions to point out the difficulty of carrying out preliminary drills generally, according to musketry regulations. In every corps, however, there is a proportion of *marksmen* who devote more time than other men can in developing their skill. To these I should recommend the issue of the Martini-Henri rifle. And on these, in the event of invasion, would probably devolve the important duty of being sent to the front as skirmishers, and the effect produced by a superior rifle in the hands of such men would be disastrous to an enemy.

8th Regiment of Cavalry—Lieut-Col. Saunders.

The inspection of this fine regiment by myself on the 15th July on the completion of its annual drill has already been adverted to in this report, it is only necessary to add that success attended the efforts of both officers and men in maintaining efficiency during the limited time at their disposal. So limited indeed was the time that instruction in many important details of the cavalry soldier's duty had necessarily to be omitted.

Newcastle Field Battery of Artillery—Brevet-Major Call.

Inspected by the Inspector of Artillery and myself on the 29th July.

Brevet Major Call has had, from time to time, since the acceptance of this battery in 1868, to overcome some obstacles to ensure the better organization of the corps, among which may be mentioned the difficulty of obtaining good horses. Whilst the Intercolonial Railway was being constructed, he has never experienced difficulty in securing the services of men of a good class, and the overcoming of difficulties appears to be not the least agreeable part of this officer's duty. He must, therefore, have been pleased that the Inspector expressed himself satisfied at the degree of efficiency attained.

Woodstock Field Battery—Capt. Dibblee.

I regret that the Inspector of Artillery was unable to see this battery on the completion of its annual drill in camp, as he would have found, I can bear testimony, the various parts of an efficient battery in working order; the captain a well trained officer from "A" Battery, School of Gunnery, backed by a zealous subaltern, intelligent non-commissioned officers and drivers, the owners of horses of an excellent stamp,

and fairly trained gunners, all drawn from one of the finest agricultural counties in the Dominion, the people of which county take a just pride in the Active Militia force in their midst.

The camp was situated on a plateau near the town of Woodstock; the parade ground afforded sufficient scope for drill.

The camp duties appear to have been properly carried out, and good order and discipline prevailed.

N.B., Brigade of Garrison Artillery—Lieut-Colonel Foster.

The four batteries at St. John were inspected by Lieut.-Colonel Strange on the 8th August.

After many years of careful training, under the supervision of Lieut.-Colonel Jago, with no lack of zeal and activity and with much knowledge on the part of the officers, from Lieut.-Colonel Foster downwards, and with no ordinary intelligence on the part of the non-commissioned officers and gunners, it must have been extremely gratifying to every member of the brigade to learn from the Inspector of Artillery, who is evidently as ready with words of blame when deserved, as with terms of praise where due, that their steps of progress have been in the right direction.

No. 7 Battery, Chatham—Brevet-Major Gillespie.

I am glad to have to report, from the drill and practice witnessed by me on the 29th July, in the absence through illness of the Inspector of Artillery, that I consider the efficiency of this battery forms no exception to the rule as to the satisfactory state of efficiency of the rest of the brigade.

It has been recommended to change the Infantry Company at Dalhousie, now an isolated corps, into a Battery of Garrison Artillery for the defence of the important Harbour of Dalhousie.

I regret that the efforts made to reorganize the Battery at St. Andrews, even by having half the battery at St. Stephen, with head quarters at St. Andrews, have not as yet been successful.

Before concluding my report, with respect to the Artillery of New Brunswick, a force highly commended by inspecting officers, I think it due to Sergeant-Major Hughes, late R.A., to bear testimony to his indefatigable efforts in imparting instruction to the different corps, efforts that have produced excellent results.

62nd "St. John" Battalion—Lieut-Col. Arbuthnot Blaine.

I inspected this battalion on the 1st August.

It paraded its full numerical strength.

The field officers and captains, in some instances, were tested as to their knowledge of imparting instruction in battalion drill, and company officers in like manner were tested in company drill, and the corps was exercised in skirmishing.

In the absence of the Major General commanding, I am glad that an officer of much experience in the Imperial Army and one who takes a deep interest in the Active Militia of New Brunswick, Major General Domville, R.A., was present during the whole of this inspection, and I cannot do better than quote his words, as reported, with respect to the efficiency of the corps.

He expressed himself, "surprised at the proficiency displayed, knowing the constitution of the battalion, knowing that there was a large proportion of recruits in the ranks, and knowing how long it takes in the regular army to make the men efficient."

Major General Domville, remarked particularly as to the way in which Captain and Adjutant McLean (a past cadet of the Military School) drilled the battalion, and he conveyed some excellent advice respecting their military duties to both officers and men.

It may be added that the majority of the officers are passed cadets of the Military School.

On the retirement of Lieut-Colonel Sullivan—himself an officer of long standing—the corps has secured a worthy successor in Lieut-Colonel Blaine, of whose zeal and energy, I have already had occasion to bear testimony. He has served in almost every capacity in the force, from the Private to the Lieut-Colonel, and while he has shown himself willing to obey, he has proved himself to be fitted to command.

67th Battalion "Carleton Light Infantry"—Lieut.-Colonel Upton.

Accompanied by the Lieut.-Colonel I inspected the different companies shewn in the tabular return hereto appended, while the Brigade-Major inspected the companies at Woodstock and Victoria Corner. I have with pleasure observed the steps of development of this fine battalion for the past ten years, commencing with one volunteer company at Woodstock, subsequently the Home Guards, commanded by Lieut.-Colonels Baird and Tupper, at the time of the threatened invasion were added to its strength, and now the organization, comprising ten companies, extends over three flourishing agricultural counties: Carleton, Victoria and Madawaska; and efficient as the battalion has at all times been, I consider that the captains of the following companies deserve special mention, for it was apparent at my inspection that they had left nothing undone to ensure a remarkable degree of proficiency:—

Capt. Hartly, Peel; Capt. Baker, Baker Brook, Lieut. Beckwith, Grand Falls. The Brigade-Major, besides, reports most favourably, as I should expect, as to the efficiency of Captain Bourne's company.

71st Battalion—Lieut.-Colonel Marsh.

When, in company with the Lieut.-Colonel, I inspected the Fredericton Company, Capt. Cropley, on the Queen's birthday, I considered it worthy of being the "District Head-quarters Corps" officers and men setting an example to others in efficiency and soldierlike appearance: and when I afterwards inspected the out-station companies at St. Marys, Stanley and Bright (Brevet-Majors Staples and Wilkinson, and Capt. Christy), I there found that the same zealous energy prevailed in maintaining the efficiency of the battalion. There are many "past cadets" in this corps, and they have, in most instances, proved to be useful members of the force.

73rd Battalion—Major Shirreff.

The three companies drawn for drill of this battalion were inspected by the Brigade-Major on the dates shewn in the tabular return, and he reports favourably as to their efficiency, more particularly in the case of the Baie du Vin Company, Capt. Cameron. This is as might be expected, as this officer is a well trained "past cadet" of the Military School, and his example in attending the school at some personal sacrifice may be followed with advantage by others in the battalion.

74th Battalion—Lieut.-Colonel Beer.

I inspected the companies of this battalion drawn for drill on the 18th, 19th and 20th of July last. The Lieut.-Colonel accompanied me at the inspection of the two companies, Captains Wetmore and Alward, and he may be congratulated on the acquisition of two efficient companies, especially the former company, the captain having evidently made good use of the time at his disposal for drill.

Capt. Murray's Company may also be mentioned as keeping up the credit of the corps as regards efficiency. There were many spectators at the inspection of this company, shewing a loyal spirit on behalf of the Active Militia.

St. George Infantry Company—Brevet-Major McGee.

Charlotte County has at all times produced efficient corps, and it was evident from the inspection of this company on the 17th June last, that the same good spirit

that has marked the corps of this county still prevails. The efficiency of Major McGee's Company is all that can be desired.

On the completion of the Southern Railway, at an early day it is expected, this company can be easily conveyed to any point of concentration in the west of New Brunswick.

Dalhousie Infantry Company—Capt. Barbaric.

This company has already been adverted to in this report under the head of Garrison Artillery.

I have the honour to be, Sir,
Your most obedient servant,

GEO. J. MAUNSELL, Lieut.-Colonel
Deputy Adjutant General commanding.

Colonel Powell, Adjutant-General.

[A.]

(Copy.)

ST. JOHN, N.B., July 13th, 1876.

SIR,—For the information of the Major-General commanding, I have the honour to state, that on Tuesday the 11th day of July instant, at 11.15 o'clock p.m., I, as senior officer of the District, received from the Mayor of this city a document (copy annexed*) dated 5th July instant, signed by himself and two other Justices of the Peace, informing me that in their opinion a disturbance of the peace of the city was anticipated, and that they should "require the service of the Active Militia," and requesting me "to call out the same in aid of the civil power, for the purpose of preventing or suppressing such anticipated disturbance."

At 12.30 p.m. same date I issued an order for one hundred and thirty men, with a due proportion of officers, to muster on the barrack square in marching order without knapsacks, at 7.30 a. m. on the 12th inst.

At 8.25 a.m. (12th) I addressed a note to the Mayor (note annexed) informing his Worship that at 10.30 a.m., in compliance with his requisition, the corps would be paraded at the City Court House to await his further instructions.

Punctually to the time named the force was on the ground, and properly equipped for duty.

As the weather was quite warm, the men were marched into the Court House, and remained there until 4 o'clock p.m., when I received a communication—(copy annexed) from the Mayor, which stated that for certain reasons given their services were no longer required, and thanking them for "the promptness with which they were called out in aid of the civil power."

Previous to marching the corps to their several armories, I requested the Brigade Major, Lieut.-Colonel MacShane, to read the Mayor's letter. At its close I thanked the officers and men for their prompt response to my order, and for their extremely good conduct during the day, assuring them that it gave me, and I believed every lover of good order in our city, the greatest pleasure to know, that in our midst and of our own people we had a body of well drilled men, on whom, in case of any emergency occurring to require their aid our civil authorities could at all times depend, giving expression at the same time to the hope, that as in the present instance so might it be in the future, that the good sense of our people might never require their services in any other capacity than as protectors and defenders of the liberties of our country.

I have the honour to be, Sir,
Yours very truly,

S. A. FOSTER, Lieut.-Colonel Commanding.

The Adjutant General of Militia,
Ottawa.

*A. S. O. not enclosed.

[B.]

MAYOR'S OFFICE,
ST. JOHN, N.B., 12th July, 1876, at 3 o'clock p.m.

SIR,—I have the honour to acknowledge the receipt of your communication of this date, stating, that in compliance with requisition, you have ordered out a body of the Active Militia of this District in aid of the civil power.

I have now to inform you that the public procession of the society known as the Society of Orangemen, has passed through the streets, and that from the commendable conduct of the people in the districts through which the procession passed, no disturbance of the peace has occurred. And I have to state that the services of the Active Militia under your command are no longer required.

I have also to thank you for the promptness with which the Militia force was called out in aid of the civil power for the purpose of preventing or suppressing anticipated disturbance.

I have the honour to be, Sir,
Yor obedient servant,

(Signed), A. CHIPMAN SMITH, Mayor.

To Lieut.-Colonel Foster,
Senior Officer, Active Militia,
St. John, N. B.

MILITARY DISTRICT No 9.

HALIFAX, N. S.
29th November, 1876.

SIR,—I have the honor to inform you that the quota of Active Militia required to be furnished from the District under my command, was originally fixed at 4,284.

The actual enrolled strength of corps, which have been accepted and gazetted is 4,486. Under the regulations for annual training for 1876-77, the number of men to be called out for training was limited to 2,350, and the strength of companies was also not to exceed 42 rank and file.

I found a very general desire on the part of all the corps and all the companies composing each corps to attend training, and as it was by General Order left with me to select the corps for drill, I held it was most desirable to maintain the cadres of all the corps, and kept this in view in my arrangements for the selection.

I append copy marked (A) of the District Order, and subsequent action under which the choice of corps was made.

The actual strength of effectives inspected or absent on account of sickness or causes beyond control was 2,218, and 148 who had actually completed training, but who were absent without leave or satisfactory explanation from inspection were struck off the pay list.

Tabular inspection reports are forwarded herewith, also particulars of the inspection of each corps.

1st BRIGADE.—(HALIFAX CITY.)

The Halifax Light Battery.

The annual shot and shell practice was conducted on the 11th August, at Point Pleasant, Lieut.-Colonel Strange, Dominion Inspector of Artillery, was present and expressed himself to me as well satisfied with the skill shown in the practice.

The 1st and 2nd Halifax Brigades Garrison Artillery consisting of 7 Batteries for training were inspected by me on the 3rd November, 1876. The turn out of officers and men was, as is always the case with the corps of the City Brigade, soldierly,

smart and creditable. After inspection of clothing and appointments by batteries and comparison of numbers present with parade states, the seven batteries were formed into a battalion, under Lieut.-Colonel Mitchell, and put through a steady drill, which was creditably performed.

A gun detachment was then taken from each battery, and the guns in the drill shed were manned and worked under command of Major Boak. Considering the shortness of time allowed for training the men worked the guns remarkably well, and did their officers and instructors great credit.

The 63rd (Rifles) was inspected by me on the 7th November; the work in battalion and skirmishing was good, and thus shows the results of the careful training this corps has for so long undergone.

The 66th was inspected the same day, a much younger battalion in the service, under Lieut.-Colonel Bremner's painstaking in training, do him and themselves credit. The men of this battalion have, I understand, given the whole of their annual drill pay to the regimental and company funds, an example worthy of imitation.

78th Highlanders.

Four companies of this battalion were inspected by me at Truro, on the 20th October. Major Blair who, in Lieut.-Colonel Campbell's absence on leave, was in command, handled the men very creditably both in battalion and skirmishing; the readiness shown by the men in taking advantage of cover when skirmishing, showed that last year's lessons had not been lost on them, and the perfect steadiness of the men in the ranks was very commendable.

No. 5 Company was inspected by me at Windsor on the 26th October. Capt. Burgess as usual has been indefatigable in his attention to the training of his men, and his efforts have been well rewarded.

Pictou Battery Garrison Artillery was inspected by me at Pictou on the 20th November. The men of this battery train all the year round, and take great pride in both drill and appearance, both do them credit.

Cumberland Provisional Battalion (3 companies), under Major Harrison was inspected by me at Spring Hill, on the 14th July. These companies are composed of good, willing and steady men who work fairly in battalion and skirmishing movements, but there is plenty of room for more smartness, both in turn out and in drill.

2ND BRIGADE.

The 68th Battalion was inspected at Kentville, on the 19th September, by Lieut.-Colonel Milsom, during my absence on leave. He reports favourably of the battalion. His report marked (B) is attached.

The 69th Battalion was inspected by me at Paradise on the 7th September. Lieut.-Colonel Starratt takes great pride in his battalion, which always turns out with full ranks, and is composed of a fine body of men. The general movements of a battalion, both in close and extended order, were fairly performed. No. 9 Company was inspected at Bear River on the 21st November, by Lieut.-Colonel Milsom, and is referred to in his report marked (B) attached.

The 72nd Battalion was inspected by me at Middleton on the 30th October. This battalion is also composed of a very fine body of men, as far as physical appearance is concerned; the men were generally steady and attentive, and went through their drill fairly, but hardly take sufficient pride in their personal appearance.

The 75th Battalion was inspected at Lunenburg on the 26th October by Lieut.-Colonel Milsom, who mentions the battalion favourably in his report marked (B) attached.

The Lunenburg and Mahone Bay Batteries of Garrison Artillery were inspected at Lunenburg with the 75th battalion, and drilled as part of the battalion at infantry drill. These batteries have not as yet had any artillery training, as the commanding officers have always reported that their men were absent on fishing voyages at times

suitable for encamping near the harbor batteries for great gun practice and drill. Lieut.-Colonel Milsom's report speaks favourably of the willingness and steadiness of these men.

3RD BRIGADE.

The Victoria Provisional Battalion was inspected by me at Baddeck, on the 4th July, 1876. This regiment is composed for the most part of a fine body of men, who are generally attentive and willing, but want a great deal of practice in battalion drill.

No. 5 Company was inspected by me at Sydney on the 6th July, but owing to the prevalence of a heavy storm of rain and wind, was dismissed after a few movements.

The conduct of the detachment of this battalion that was called out in aid of the civil power, and proceeded under Lieut.-Colonel Reade's orders to protect property and life during the strike at Sydney Mines, had been already reported by me, and favourably noticed in General Orders, and I can only again repeat my approval of the tact and good judgment displayed by Lieut.-Colonel Reade on this occasion.

ARMS.

I cannot refrain from again calling attention, as in my reports for 1874 and 1875, to the necessity for the arms in possession of the several corps in this District being inspected and put in order by a competent armourer.

CLOTHING.

In the last issues of infantry trowsers made to several corps in this District, the material was very inferior and would not stand the wear and tear that necessarily accompanies active service.

TRAINING.

The rural battalions are composed of a class of men who are very painstaking, and in good hands would rapidly become efficient; they require officers and non-commissioned officers who can and will instruct them. Both officers and men are zealous, but officers hardly appear to realise the necessity for preliminary reading up and practice before the annual training commences, so that they may be able to make the most of the few days training that General Orders prescribe for the men. In these corps, therefore, strong necessity exists, as I have already recommended, for the preliminary training of officers and non-commissioned officers.

In the City Brigade where the drill is more continuous, officers make a point of keeping up their drill, and the results are creditable to them and satisfactory to their commanders.

Now that the number of days prescribed for drill is so much reduced, and the days' pay is so small, it becomes a question whether it would not be expedient to issue the amount as a capitation grant to the company, or corps, instead of as pay to the individual—very few men, even at present, join the force for the sake of the pay, but there is little doubt that many good men are deterred from belonging to it, lest they should be said to be drilling for pay—and good as the material of which the Militia is at present composed may be, it is obviously desirable to get the very best that may be obtainable, and remove any obstacles that may hinder good men from coming in.

I have the honour to be, Sir,
Your obedient servant,

J. WIMBURN LAURIE, Colonel,
Commanding Military District No. 9.

The Adjutant-General of Militia,
Ottawa.

[A.]

(District Order No. 1.)

HALIFAX, N. S., 31st May, 1876.

In accordance with instructions contained in General Orders (10) of 18th May, 1876, relative to annual training of the Militia, the following will be the detail of corps authorized to train, in order to keep within the quota allowed to this District:

	District Detail	Head Quarter's Detail
Halifax Field Battery.....	80	80
7 Batteries G. A., at 42 each and 6 Staff....	300	465
3 do 41 do	123	
26 Companies Infantry at 44 each.....	1,144	1,805
16 do 42 do	688	
Battalion Staff	23	
	2,358	2,350

The Garrison Batteries will be selected by lot, the drawing being made by single batteries.

In the Infantry, half a battalion of each corps or in all 28 companies will first be selected to drill, so that the regimental organization may, as far as practicable, be maintained—the remaining companies will be selected by lot from the whole force, the drawing being made by separate companies.

The number of staff officers permitted to train with the several corps will be named by the Deputy Adjutant-General according to the strength of each corps, and the total number permitted to train under General Order (10).

Lots will be drawn at 2:30 p. m., on the 1st June, in presence of a District Board composed of the Deputy Adjutant-General as President, Lieut.-Colonels commanding Battalions and District Staff at Head Quarters as members.

J. WIMBURN LAURIE, Colonel,
Commanding Military District No. 9..

HALIFAX, N.S., 1st June, 1876.

We certify that the selection by lot of the corps for training the ensuing season, was made in our presence, and that the undernamed corps were so selected.

1st Halifax Brigade, Garrison Artillery—	4	Batteries.
2nd do do do	3	do
Mahone Bay Battery,	1	do
Lunenburg do do	1	do
Pictou do do	1	do
63rd Battalion Rifles—	5	Companies.
66th do Infantry	4	do
68th do do	6	do
69th do do	6	do
72nd do do	4	do
75th do do	4	do
78th do do	5	do
Victoria Provisional Battalion—	5	Companies
Cumberland do	3	do

(Signed) J. W. LAURIE, Colonel.
D.A.G. President.

do	T. MILSOM, Lieut.-Col., B. M.
do	JAS. J. BREMNER, Lieut.-Col. 66th Batt'n
do	GEO. MITCHELL, Lieut.-Col. 1st H. B., G. A.
do	D. McPHERSON, Lieut.-Col. 2nd H. B., G. A.
do	W. H. PALLISTER, Lieut.-Col. 63rd Batt'n. Rifles.
do	C. J. MACDONALD, Major, Dist. Paymaster.

(District Order No. 2.)

HALIFAX, 10th June, 1876.

In accordance with instructions contained in General Orders (10) of 18th May, 1876, and District Order of 31st May the selection by lot was made in presence of a Board of Officers on 1st June.

The undernamed corps are authorized to train during the present season, numbers not to exceed 39, exclusive of Staff and Band.

Halifax Field Battery.

All ranks..... 80

1st Halifax Brigade Garrison Artillery.

4 Batteries at 42 each, and 3 Staff—Lieut.-Col., Surgeon and Adjutant 171

2nd Halifax Brigade Garrison Artillery.

3 Batteries at 42 each, and 3 Staff—Lieut.-Col., Surgeon and Adjutant 129

Mahone Bay Battery, Garrison Artillery..... 41
Lunenburg do do 41
Pictou do do 41

63rd Rifles.

5 Companies and 3 Staff—Lieut.-Col., Surgeon and Adjutant... 223

66th Battalion.

4 Companies and 3 Staff—Lieut.-Col., Surgeon and Adjutant... 179

68th Battalion.

6 Companies and 3 Staff—Lieut.-Col., Surgeon and Adjutant... 267

69th Battalion.

6 Companies and 3 Staff—Lieut.-Col., Surgeon and Adjutant... 267

72nd Battalion.

4 Companies and 2 Staff—Lieut.-Col., and Surgeon..... 170

75th Battalion.

4 Companies and 2 Staff—Major and Surgeon..... 170

78th Battalion.

5 Companies and 3 Staff—Lieut.-Col., Surgeon and Adjutant... 223

Cumberland Provisional Battalion

3 Companies and 2 Staff—Major and Surgeon... 125

Victoria Provisional Battalion.

5 Companies and 2 Staff—Major and Surgeon..... 212

J. WIMBURN LAURIE, Colonel,
Commanding Military District No. 9.

RETURN shewing corps, officers, non-commissioned officers and men of the *Active Militia* in Military District No. 9 who cannot under General Order (10), of 18th May, 1876, draw pay for training for the year 1876-77.

Kings County Troop of Cavalry.

1st Halifax Brigade, Garrison Artillery—2 Batteries and 4 Staff Officers.

2nd Halifax Brigade, Garrison Artillery—3 Batteries and 3 Staff Officers.

Digby Battery Garrison Artillery.

63rd Battalion Rifles—1 Company and 5 Staff Officers.

66th Battalion—4 Companies and 5 Staff Officers.

68th Battalion—3 Companies and 5 Staff Officers.

69th Battalion—3 Companies and 5 Staff Officers.

72nd Battalion—2 Companies and 4 Staff Officers.

75th Battalion—2 Companies and 2 Staff Officers.

78th Battalion—2 Companies and 4 Staff Officers.

Cumberland Provisional Battalion—2 Companies and 3 Staff Officers.

Victoria Provisional Battalion—3 Staff Officers.

J. WIMBURN LAURIE, Colonel,
Commanding Military District No. 9.

[B.]

(District No. 9.)

HALIFAX, 25th November, 1876.

SIR,—I have the honour to report that in compliance with your instructions, I inspected the following corps of Militia in this District.

68th Battalion, at Kentville, under the command of Lieut.-Col. Chipman.

Battalion, firing exercise and skirmishing fairly performed.

Strength—15 officers, 260 men

75th Battalion Lunenburg, and the Lunenburg and Mahone Bay Batteries of Garrison Artillery were formed in battalion under the command of Major J. Rudolf, 75th Battalion, and practised in company, battalion and skirmishing; satisfactorily performed.

Strength—10 officers, 151 men.

I inspected No. 9 Company, 69th Battalion, at Clements Port on the 21st Nov., under the command of Capt. W. Harris.

Strength—2 officers, 42 men.

Manual and platoon exercise and company drill fairly performed.

This company is thirty miles from battalion head-quarters, and could not be brought to drill with it.

I have the honour to be, Sir,
Your obedient servant,

T. MILSOM, Lieut.-Col.

COL. LAURIE, D.A.G.,
Military District No. 9,
Halifax.

MILITARY DISTRICT No. 12.

HEAD-QUARTERS, CHARLOTTETOWN,
30th November, 1876,

SIR,—I have the honour to submit the accompanying Inspection Report for the information of the Major-General commanding, being the Annual Return of drill and training of the Active Militia in this District.

In obedience to the instructions contained in the General Order dated Headquarters, Ottawa, 18th May last, I at once conferred with Lieut.-Colonel Beer, the senior officer of the Active Militia, and arranged with him that the corps and companies named in the report should be detailed to perform the annual drill. Of these seven corps and companies have performed the eight day's drill—in number, 14 officers and 274 non-commissioned officers and men, while two companies, Nos. 2 and 3, of the Queen's County Battalion have not drilled.

In the month of July the Inspector of Artillery visited this Province, and under the requirements of No. 1 of General Orders 8th October, 1875, a Board of which he was a member, assembled in Charlottetown to inspect and report upon articles unserviceable and deficient in the Artillery equipments. On the 25th July detachments from Nos. 1 and 2 Batteries of the Charlottetown Garrison Artillery practiced with solid shot from the six-pounder gun, under the supervision of the Inspector, and afterwards the two batteries paraded for his inspection, when he was pleased to express his opinion of the two batteries in commendatory terms, and also awarded prizes from the Dominion Artillery Association to the best shots.

On the 22nd August the Provincial Rifle Association held its annual meeting which was well attended by members from the Active Militia.

On the 31st August I proceeded to Alberton and inspected No. 4 Company of the Prince County Battalion. Lieut.-Colonel Hunter-Dewar, commanding the battalion

with his usual zeal, met me on the parade. I found this company in excellent order and discipline, but labouring under the serious disadvantage of having a captain who alleges that his business arrangements prevent his giving that attention to the company which he otherwise would, and that he is about to resign.

Returning from Alberton on the following day, I inspected at Summerside Captain Price's Battery of Garrison Artillery. This corps has been unfortunate in having had three captains within the year; but I am glad to be able to report that the gentleman who has last been appointed is an intelligent, capable officer, who, with a commendable desire to qualify himself for his duties, proceeded to Quebec a few days ago for a course of instruction in the School of Gunnery—and I have no doubt he will prove a credit to the service. This battery turned out clean and orderly, but greatly behind in their knowledge of drill. It is very desirable that suitable ordnance should be supplied, as they allege they were enrolled under the assurance that they were to be equipped in accordance with their designation.

On the 4th August I inspected the newly raised company at Cardigan, being No. 2 of the King's County Battalion, Major Macdonald commanding. The battalion met me at the station, and I have to thank this officer for his valuable aid in the very difficult task of enrolment. This company had only been drilled for the first time, yet made a creditable appearance, and as the captain is a gentleman of considerable influence in the locality, he will be able to do much to promote its efficiency.

From Cardigan I proceeded to Georgetown and inspected Captain Owen's Battery of Garrison Artillery, and as usual with this excellent officer, I found it in a condition with respect to drill and discipline which reflects much to his praise. The attendance on parade was limited, owing to the weather. This battery is also unprovided with guns.

On the 18th October I inspected, in Charlottetown, Major Morris's Battery of Garrison Artillery, and on the 30th of the same month I inspected Major Pollard's Battery of Garrison Artillery, and No. 6 Company of the Queen's County Battalion; all of these made a very good turn out, and were tolerably well up to their drill.

I have now to report that both officers and men of the Artillery express their dissatisfaction with the clothing; and although I cannot but assume it is not within my province to offer comments in a public report on the merits or demerits of the equipment provided by the Government, yet in this case I venture to do so, to remark that the serge tunic, however well adapted for light fatigue duties in summer or in a tropical climate, is not, in my opinion, calculated to wear for any length of time from a want of durability in the cloth, and the fit is not such as to make the wearing of it popular among young men taking a pride in their personal appearance. Complaint is also made of the want of a suitable head gear for dress parades.

There is a matter which has caused me some anxiety and concern, which I deem it but right and proper respectfully to submit for the consideration of the Major-General commanding. I would allude to the position of those rural companies which being beyond an ordinary day's march are consequently unable to avail themselves of the range at the head-quarters of the Regimental Division. If they continue to practice with ball, without butts or any protection to the public, the lives of passers-by cannot fail to be thereby endangered, a risk no one should be obliged to run when the insignificant outlay of a very moderate sum would wholly prevent what would be a deplorable calamity. I would therefore recommend that a proper range be provided at each of the headquarters of the companies I have referred to.

I have the honour to be, Sir,
Your most obedient humble servant,

JOHN HAMILTON GRAY,
Lieut.-Col., Deputy Adjutant-General.

To the Adjutant-General,
Head-quarters, Ottawa.

MILITARY DISTRICT NO. 10.

HEAD QUARTERS,
WINNIPEG, 5th December, 1876.

SIR,—Since my last annual report, several changes have occurred in the organization of the District under my command.

The force on service, has been largely reduced, the troops remaining here being barely sufficient to perform the ordinary garrison duties, and those requisite for the efficient protection of the barracks and stores at Fort Osborne.

Of the local force two companies "the Poplar Point," and the "Mapleton," have been struck off the list, having become non-efficient; these were among the last of the organizations which I found here at the time of my assuming command of the District in 1871, and which, raised and gazetted under circumstances of excitement, have gradually become ineffective.

Of the corps raised at the time to which I refer, the only still existing are the "Winnipeg" Field Battery of Artillery and the "Scuth St. Andrews" Rifle Company.

The former, as will be seen by my detailed report, gives great promise of efficiency. The latter I recommend should be retained on the list in view of future re-organization; special circumstances peculiar to this new Province have presented obstacles to the drill of this corps during this year, but I have every expectation that it can be reorganized as an Infantry Company in the ensuing spring.

The prospects of the formation of a real and effective and not a "paper" Force in this Province are now good.

One new company, the "Kildonan," composed of farmers, natives of the country, (with few exceptions) chiefly of Scotch descent, presents a body of young men, whose physique and intelligence compares favorably with any company I am acquainted with in the Eastern Provinces.

A company from Emerson, and two from Winnipeg, are offered for acceptance; these three companies are organized on the best of bases, and as previously reported their enrolment is strongly recommended by me.

The actual strength of corps existing and authorized in this Province, is as follows:—

Dominion Forces on Service in Manitoba.

	Officers.	N. C. Officers. and Men.
Detachment of Artillery.....	1	25
Company of Infantry.....	4	25
Total.....	5	50

Local Corps.

Winnipeg Field Battery.....	6	74
South St. Andrews Rifle Company.....	3	42
Kildonan Infantry Company.....	3	42
Total.....	12	158

Of the above corps I have to report as follows —

Dominion Forces on Service.

The Artillery Detachment, under command of Lieut. and Brevet-Captain Cotton, is in a state of efficiency; a thorough course of training, with the exception of riding drill, to the extent, that is desirable, has been gone through during the past year.

Theoretical and practical instruction has been carried out, including actual practice with their armament, viz:—9-pounder muzzle-loading rifled gun. A tabulated statement (B) and report (A) from the officer commanding this corps is forwarded.

The Infantry Company so far as their limited numbers allowed, have been trained and exercised in their duties and drill.

Both the above named corps may be considered as in a high state of efficiency, and in organization, discipline and drill, so far as numbers permit, are equal in all such respects to Her Majesty's regular troops of the line.

Both the above corps have gone through the regular annual course of training of theoretical as well as practical instruction in musketry, including "target practice" and "judging distance drill," under Acting Musketry Instructor Ensign Street. The officers of both corps, and non-commissioned officers, have, during the autumn, daily gone through a course either of readings or instruction in standing gun drill, in accordance with District orders published from time to time.

It may be worthy of notice that in a competitive examination for an honorary prize, written and practical, with a standard of merit of more than average value, which was keenly competed for by several sergeants, the winner, whose marks were within 25 per cent. of the utmost figure, was one entirely trained in this service. With the exception of two or three subjects, the examination was of a stringency fully equal to that of a subaltern's in the regular service.

LOCAL CORPS.

The "Winnipeg Field Battery of Artillery."

This corps, of which I have already had the honour to report favorably, has this year, for the first time, been in a position to go through the annual training in camp, the results were very satisfactory.

The armament of the corps not having arrived at the time arranged for the training, although it was in transition from eastward, the officer commanding the detachment of Dominion Artillery, with my sanction, lent the guns, harness, etc., in his charge for the annual drill.

The camp was situated at a point known as "Little Stony Mountain," about six miles to the westward of Winnipeg, and was conducted in accord with the general orders relative to the training of Field Batteries of Artillery.

The inspection of the corps was in all respects satisfactory, and the conduct of the men while in camp was excellent; the result of this, the first training of the corps in camp, reflects credit on Major Kennedy and the officers of the Battery.

I was assisted in carrying out the details of the inspection of this corps, and the preliminary arrangements relative to the artillery training, by Lieut. and Brevet-Captain Cotton of the Dominion forces here, for whose services in this report I beg to record my thanks.

The South St. Andrews Rifle Company.

Local circumstances combined to preclude this corps from going through the annual course of training; the officer commanding, however, is of opinion that the corps can be reorganized (the term of enlistment of the men has now expired) in the spring, and with this view, and bearing in mind its past efficiency, I would recommend that it be retained for the present on the list.

The Kildonan Infantry Company.

This corps has not yet received equipment and uniform, and therefore has been unable to put in its annual course of drill. Notwithstanding, a voluntary drill is regularly maintained weekly, and I have little doubt but that this will become a highly efficient corps.

School of Instruction.

I have in two successive Reports, strongly recommended the establishment of a School of Military Instruction for the Province at this station, in connection with the force on service here—the distance to the nearest Schools acts as an insuperable barrier in most cases to the officers or non-commissioned officers qualifying as in the other Provinces, and the want is much felt.

Armourer for the District.

This want, on which I have already, on more than one occasion, had the honour to report, I again respectfully beg to mention.

Government Militia Buildings.

Repairs to such of the buildings at Fort Osborne as are now occupied, and to such an extent as was absolutely requisite, have been completed, in accordance with the authority received in November last. The repairs have been well effected, and not only will the men be much more comfortable than hitherto, in winter, but a considerable saving in the costly item of fuel-wood will be made, from the buildings having been made wind and weather-tight.

Powder Magazine.

May I again draw attention to the absolute necessity of having a magazine constructed at Fort Osborne. At present, the fixed ammunition has to be distributed in the store huts, while "loose" powder is still kept, for want of a proper place of deposit, in the temporary earth magazine on the banks of the River Assiniboine.

The dampness of this place of storage deteriorates the powder, which has to be removed when the spring floods occur, during their prevalence.

General Remarks.

The reduction of the force on service at the end of the past financial year, so far diminished the strength that, though much curtailed, the duties of the men have been heavy, and a further drain on the strength has lately been made in consequence of the necessity of detailing an officer's party in aid of the civil power, to a point in the northern portion of the Province, where a quarantine line between non-infected and infected districts by small-pox has been established by the Provincial authorities,

The conduct of the men who are employed on this duty, at a very isolated spot, has been most praiseworthy; their duties mainly consists of patrolling and watching certain roads, and these they perform unremittingly, with an inadequate force, through days and nights, in which the thermometer has ranged down to 35° below zero, and but for a few hours, is occasionally higher during the day. I respectfully request, in connection with this subject, to draw the attention of the Major General to the unwearrying zeal and tact shown by Ensign Street, who is in command of the party, in carrying out his duties, and in his intercourse with the civil authorities.

As my special Reports relative to the formation of new local corps, previously spoken of, and other matters connected with the Military affairs of the District are already before you, it is needless that I should further allude to them.

I have the honor to be, Sir,

Your obedient servant,

W. OSBORNE SMITH, Lt.-Colonel,

B. A. G., Military District No. 10.

Commanding Dominion Forces on Service in North-West.

To the Adjutant-General
of Militia, Ottawa.

[A.]

FORT OSBORNE, WINNIPEG,
October 28th, 1876.

SIR,—I have the honour to state that, with your approval, I carried out the annual practice of the the detachment under my command on the 17th October, 1876, the guns used being the nine-pounder muzzle-loading rifle. The range selected was in every respect a suitable one, situated some five miles from Winnipeg, and the number of rounds fired as follows, viz. :—Ten rounds common shell, percussion fuze ; ten rounds common shell, time fuze ; ten rounds Shrapnel shell, time fuze. Range, 1,400 yards.

This is the first time the Artillery on service here have had their annual practice, which was conducted in accordance with the rules of the Dominion Artillery Association, which rules I consider particularly good, and well calculated to impart professional knowledge and practical experience of the use and effect of artillery fire to all non-commissioned officers and gunners. Complying with the above mentioned rules, I carefully selected the best drilled and instructed non-commissioned officers and gunners to form a full gun detachment, which number I consider a fair proportion, taking into consideration the total strength, and I am pleased to be able to report that from the excellent practice made it was evident that my selection had been a successful one. The remaining men who were not among the number selected to fire, attended the practice, and were also carefully instructed in the use and application of artillery projectiles and stores, and had the advantage of seeing the effect of the different projectiles fired.

It is impossible to over-rate the benefit derived by all the non-commissioned officers and men from the annual practice with the guns with which they are armed.

I might also here mention that at the wish of the non-commissioned officers and men of my detachment, I affiliated with the Dominion Artillery Association, and at this practice competed for the prizes offered by that Association. The fact of having some small prizes to compete for produces a beneficial result, and is the means of obtaining from all concerned greater care and attention while at practice than would otherwise be shown. I attach herewith a return (B), showing the number of points obtained by each non-commissioned officer and gunner.

I have the honour to be, Sir,
Your obedient servant,

JOHN COTTON, Lieut. and Brevet Captain,
Commanding Detachment of Artillery on Service
in Manitoba.

To Lieut.-Colonel W. OSBORNE SMITH, C.M.G., D.A.G.
Commanding Dominion Forces in the North-West.

(B.)

Score made by the Detachment of Artillery on service in Manitoba with 9-pr. M.L.R. guns, 8 cwt., at annual practice, October 17th, 1876, each man firing three rounds, viz., two common shell, one with time fuze and one with percussion fuze, one shrapnel shell with time fuze. Scoring, &c., in accordance with the Dominion Artillery Association Rules. Range 1,400 yards.

No. in order of merit.	Rank and Names.	Total.	Average Score.	Average Time.	Remarks.
1	Sergt.-Major A. H. Peck.....	27	} 19	} 4 min. 6 secs.	} Strong north-east wind blowing across the range. First round with each projectile fired by the Officer commanding the Detachment.
2	Bombardier P. Murphy.....	25			
3	Gunner J. Patmore.....	25			
4	Sergeant F. McLeod.....	19			
5	Gunner H. Harris.....	19			
6	Corporal L. Geldert.....	18			
7	Gunner J. Robertson.....	15			
8	do D. Armstrong.....	13			
9	do H. Nimmo.....	10			
		171			

JOHN COTTON, Lieut. and Brevet Captain,
Commanding Detachment of Artillery on service in Manitoba.

APPENDIX

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 1. Lieut.-Col. J. B. TAYLOR, D.A.G.M.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		Miles.	Mode.
			Officers.	N - C. O. and Men.	Officers.	N - C. O. and Men.						
1st Regiment Cavalry		Lieut.-Col. Cole, St. Thomas.....										
No. 1 Troop		Capt. Barnes, St. Thomas.....	3	55	2	28	London.....	Oct. 14.	8	Drill performed at Troop Head Quarters.	17	Marched.
No. 2 do		Capt. Peters, London.....	3	55	2	33	do	do 14.	8			
No. 3 do		Capt. Stewart, Mooretown.....	3	55	2	33	Mooretown..	do 6.	8			
No. 4 do		Capt. Murray, Kingsville.....	3	55	2	35	Kingsville....	Sept. 28.	8			
Field Battery Artillery, London	1	Major Peters, London.....	6	75	5	74	London	Oct. 27.	12	Battery Head Quarters.		
Field Battery Artillery, Wellington.....	1	Major McDonald, Guelph.....	6	75	5	74	Guelph.....	Sept. 28.	12	do		
7th Battalion.....	1	Capt. O'Brien, London.....	3	55	1	42	London.....	Nov 29.	8	Comply Hd. Qrs.		
25th Battalion.....		Lieut.-Col. O'Malley.....										
No. 2 Company		Capt. Watts, Vienna.....	3	55	2	37	Vienna	Aug. 3.	8	do		
No. 3 do		Capt. Weisbrod, Aylmer.....	3	55	2	34	Aylmer	Sept. 15.	8			
No. 4 do		Capt. Backus, Wallacetown....	3	55	2	37	Wellington..	Oct. 20.	8			
No. 5 do		Capt. Edgecombe, Port Stanley...	3	55	2	37	Port Stanley	July 11.	8			

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 1.—Continued.			Corps.	Corps.	Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers. N. - C. O. and Men.	Officers. N. - C. O. and Men.						
28th Battalion.....	Lieut.-Col. Smith Stratford.....								
No. 1 Company	Capt. Lang, Stratford.....	3	55	2	40	Stratford.....	Oct. 24.	8	
No. 2 do	Capt. Dodd, Stratford.....	3	55	2	42	do	do 24.	8	
No. 3 do	Capt. McKnight, St. Marys.....	3	55	2	40	St. Marys.....	Sept. 2.	8	
No. 4 do	Capt. White, St. Marys.....	3	55	2	42	do	Nov. 30.	8	
No. 5 do	Capt. Paisey, Blanshard.....	3	55	2	38	Kirkton.....	do 30.	8	
No. 6 do	Capt. Gourlay, Fullarton.....	3	55	2	38	Fullarton.....	do 23.	8	
								Drill performed at Company Headquarters.	
29th Battalion.....	Lieut.-Col. Peck, Galt.....								
No. 2 Company	Capt. Parker, Galt.....	3	55	2	42	Galt.....	Oct. 27.	8	
No. 3 do	Lieut. Wilford, Crosshill.....	3	55	2	40	Cross Hill...	Nov. 23	8	
No. 4 do	Capt. Sharpe, Galt.....	3	55	2	42	Galt.....	do 23.	8	
No. 5 do	Capt. Phinn, Hespeler.....	3	55	1	42	Hespeler.....	do 11.	8	
No. 6 do	Capt. Zeigler, Berlin.....	3	55	2	37	Berlin.....	do 10.	8	
								do	

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.			
								Number of Non-exercised Men, if any.	Ranges.				Battalion.	Company.	Figure of Merit.
24 hours.		Good.		do		do				Oct. 27..	Oct. 28..				
		None.		do		do				Nov. 23..	Nov. 24..				
		Good.		do		do				do 23..	do 24..				
		None.		do		do				do 11..	do 11..				
		Very good Band.		do		do				do 10..	do 11..				
		Satisfactory.		Squad drill, company drill and skirmishing.		Yes.				Oct. 24..	Oct. 24..				
		36 hours.		do		do				do 24..	do 24..				
		do		do		do				Sept. 2..	Sept. 2..				
		do		do		do				Nov. 30..	Nov. 30..				
		do		do		do				do 30..	do 30..				
		do		do		do				.....	do 24..			

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 1.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
30th Battalion.....		Lieut. Col. Clarke, Guelph.....									
No. 1 Company		Capt. Smith, Douglas.....	3	55	2	35	Douglas.....	July 8.	8	At Company Head Quarters.	
No. 2 do		Capt. Cleghorn, Guelph.....	3	55	2	40	Guelph.....	Sept. 5.	8		
No. 3 do		Capt. Beattie, Fergus.....	3	55	2	40	Fergus.....	Oct. 27.	8		
No. 4 do		Major McBride, Elora.....	3	55	2	42	Elora.....	July 11.	8		
No. 5 do		Capt. Winfield, Mount Forest.....	3	55	2	40	Mt. Forest...	do 10.	8		
No. 6 do		Capt. Scott, Eramosa.....	3	55	2	39	Eramosa.....	Sept. 29.	8		
No. 7 do		Capt. McCullough, Erin.....	3	55	2	21	Erin.....	Oct. 12.	8		
No. 8 do		Capt. Spence, Whittington.....	3	55	2	42	Whittington	Aug. 4.	8		
No. 9 do		Capt. Thomson, Hollen.....	3	55	2	36	Hollen.....	July 7.	8		
No. 10 do		Capt. White, Arthur.....	3	55	1	35	Arthur.....	do 11.	8		
32nd Battalion.....		Lieut. Col. Sproat, Walkerton.....									
No. 1 Comp'ny		Capt. Biggar, Southampton.....	3	55	2	40	South'mpt'n	Sept. 29.	8	do	
No. 2 do		Capt. Barker, Kincardine.....	3	55	2	35	Kincardine..	Oct. 5.	8		
No. 3 do		Capt. Copeland, Lucknow.....	3	55	2	39	Lucknow.....	do 19.	8		
No. 4 do		Capt. Mitchell, Paisley.....	3	55	2	36	Paisley.....	Sept. 20.	8		
No. 5 do		Capt. Hunter, Walkerton.....	3	55	2	38	Walkerton...	Oct. 5.	8		
No. 6 do		Capt. Morton, Arran.....	3	55	2	42	Arran.....	Sept. 29.	8		
No. 7 do		Capt. Kay, Belmore.....	3	55	2	37	Belmore.....	do 21.	8		
No. 8 do		Capt. Gillies, Teeswater.....	3	55	2	29	Teeswater...	Oct. 5.	8		

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.		Cost of rations per head, per diem, at encampment.		General Conduct of Corps.		Whether in possession of Band. Number of Musicians, and proficiency.		General State of Clothing, Arms and Accoutrements.		Nature of Movements at Inspection, and how performed.		Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.		Number of Non-exercised Men, if any.		Ranges.		Target Practice.		Date of Inspection.		Date when drill was completed.		REMARKS.	
36 hours.	48 hours.	Good.	None.	Good.	None.	Very good Band.	Satisfactory.	Squad drill, company drill and skirmishing.	Yes.	Battalion.	Company.	Figure of Merit.													
Good.	Good.																								
None.	None.																								
Good Band.	Very good Band.																								
do	Satisfactory.																								
do	Squad drill, company drill and skirmishing.																								
do	Yes.																								

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 1.—Continued.		Establishment.		Actual Strength present at Inspection.		er.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers.	N - C. O. and Men.	Officers.	N - C. O. and Men.						
26th Battalion	Lieut.-Col. Attwood										
No. 1 Company	Capt. Garnett, Delaware	3	55	2	42	Delaware	Oct. 5.	8			
No. 2 do	Capt. Lindsay, Strathroy	3	55	2	42	Strathroy	do 5.	8			
No. 3 do	Major McMillan, Harrietsville	3	55	2	39	Harrietsville	Sept. 21.	8			
No. 4 do	Capt. Brown, Thamesford	3	55	2	39	Thamesford	July 22.	8	do		
No. 5 do	Capt. McMillan, Lucan	3	55	2	40	Lucan	Aug. 24.	8			
No. 6 do	Capt. Johnson, Park Hill	3	55	2	35	Park Hill	do 24.	8			
No. 7 do	Capt. Irwin, Strathroy	3	55	2	42	Strathroy	Oct. 5.	8			
No. 8 do	Capt. Wood, Arva	3	55	2	38	Arva	July 6.	8			
Leamingto Company	Major Wilkinson Leamington	3	55	2	42	Leamington	July 7.	8	do		
Windsor Comp'y	Capt. Rice, Windsor	3	55	2	42	Windsor	do 20.	8			

Performed the Annual Drill for 1876-77.—Continued.

24 hours.	36 hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
											Figure of Merit.				
											Battalion.	Company.			
Good.	Good.												Oct. 5.	Oct. 5.	
None.	None.												do 5.	do 5.	
	do												Sept. 21.	Sept. 21.	
	do												July 22.	July 22.	
	Company and squad, and skirmishing.												Aug. 24.	Aug. 24.	
													do 24.	do 24.	
													Oct. 5.	Oct. 5.	
													July 6.	July 7.	
July 7.	do 20.												July 7.	July 7.	
													do 20.	do 7.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 2.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Lieut.-Col. W. S. DURIE, D.A.G.M.			Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
Gov'r. General's Body Guard.....		Lieut.-Col. Denison, Toronto										
Troop "A".....		Capt. Denison, Toronto.....	3	55	2	28	Toronto.....	Oct. 9.	8			
" "B".....		Capt. Dunn, Toronto.....	3	55	2	27	do	do 9.	8		Nil.	Nil.
		Staff.....	1									
		Total.....	7	110	4	55						
2nd Rgt. Cavalry ...		Major Book, Oak Ridges.....										
No. 1 Troop.....		Major Gregory, St. Catherines	3	55	2	34		June 26.	8			
No. 2 do		Capt. McConnell, Oak Ridges.....	3	55	2	30		do 27.	8			
No. 3 do		Capt. Elliott, Markham	3	55	2	30		do 28.	8			
No. 4 do		Capt. Patterson, Grimsby.....	3	55	2	30		July 3.	8			
No. 5 do		Capt. Marshall, Burford.....	3	55	2	30		June 27.	8			
No. 6 do		Capt. Brown, Queenston	3	55	2	30		Oct. 9.				
No. 8 do		Capt. Buchner, Welland	3	55	1	30		Sept. 21.	8			
		Staff.....	9									
		Total.....	30	385	13	214						
Field Battery.....		Major Gray, Toronto	6	75	5	74		June 29.	12		In Barracks, New Fort.	
do		Capt. Smith, Hamilton.....	6	75	4	75		do 26.	12		Nil.	Nil.
do		Major King, Welland	6	75	1	61		Sept. 18.	12		In Camp.	
		Total.....	18	225	10	210						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 2.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
Garrison Battery		Capt. Gibson, Toronto.....	3	55	}		S. Catherin's	Nov. 11.	8	Not under canvas.	Nil.	Nil.
do		Bt.-Major Hogg, Collingwood ...	3	55								
do		Lieut. See, St. Catherines	3	55									1	42
		Total.....	9	165	1	42						
Engineers	1	Capt. and Lieut. Col. Scoble, Toronto.....	4	70	3	59	Toronto.....	Sept. 2..	8	Not under canvas.	Nil.	Nil.
		Staff.....	1									
		Total.....	5	70	3	59						
2nd Batt. Q.O. Rifles		Lieut.-Col. Otter, Toronto.....					Toronto.....	Sept. 25.	8			
No. 1 Company		Capt. Allan, Toronto.....	3	55	2	32	do	do ..	8			
No. 2 do		Capt. Buchan, Toronto.....	3	55	2	31	do	do ..	8			
No. 3 do		Capt. Roaf, Toronto.....	3	55	1	30	do	do ..	8			
No. 4 do		Bt.-Major Miller, Toronto.....	3	55	2	37	do	do ..	8			
No. 5 do		Capt. Foster, Toronto.....	3	55	2	31	do	do ..	8	do	Nil.	Nil.
No. 6 do		Capt. Hamilton, Toronto.....	3	55	2	30	do	do ..	8			
No. 7 do		Capt. Bethune, Toronto.....	3	55	2	30	do	do ..	8			
No. 8 do		Capt. Nash, Toronto.....	3	55	2	34	do	do ..	8			
No. 9 do		Lieut. Langton, Toronto.....	3	55	2	32	do	do ..	8			
No. 10 do		Capt. Vandersmissen, Toronto	3	55	2	31	do	do ..	8			
		Staff.....	8		6		do	do ..	8			
		Total	38	550	25	318						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 2.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
10th Royals		Lt.-Col. Stollery, Toronto.....					Toronto.....	July 8..	8	Not under canvas.	Nil.	Nil.
No. 1 Battery.....		Capt. Anderson, Toronto.....	3	55	2	30	do	do ..	8			
No. 2 do		Capt. Weston, Toronto.....	3	55	1	30	do	do ..	8			
No. 3 do		Capt. Rolph, Toronto.....	3	55	2	30	do	do ..	8			
No. 4 do		Lieut. De La Hooke, Toronto	3	55	1	30	do	do ..	8			
No. 5 do		Capt. Flemming, Toronto.....	3	55	2	30	do	do ..	8			
No. 6 do		Capt. Canavan, Toronto.....	3	55	2	30	do	do ..	8			
No. 7 do		Capt. J.T. Thompson, Toronto.....	3	55	1	30	do	do ..	8			
No. 8 do		Capt. Patterson, Toronto.....	3	55	2	30	do	do ..	8			
No. 9 do		Lieut. Hill, Toronto.....	3	55	1	30	do	do ..	8			
No. 10 do		Capt. F. Thompson, Toronto.....	3	55	2	29	do	do ..	8			
		Staff.....	8		6		do	do ..	8			
		Total	38	550	22	299						
12th Battalion		Lieut.-Col. Norris, Aurora					Head Quarters of Companies.			Not under canvas.	Nil.	Nil.
No. 1 Company.....		Capt. Lea, Scarborough'	3	55	2	34		June 26.	8			
No. 2 do		Capt. Strange, Aurora	3	55	2	25		do 26.	8			
No. 3 do		Capt. Bruce, King	3	55	2	25		do 26.	8			
No. 4 do		Capt. Lloyd, Newmarket	3	55	2	25		do 26.	8			
No. 5 do		Capt. Stevenson, Sutton	3	55	1	28		do 26.	8			
No. 6 do		Lieut. Tomlinson, Markham.....	3	55	1	40		Nov. 15.	8			
No. 7 do		Capt. Wayling, Sharon	3	55	2	25		June 26.	8			
No. 8 do		Capt. Eckardt, Unionville	3	55	2	20		do 26.	8			
		Staff	8		4							
		Total	32	440	18	222						

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	24 hours.	24 hours.	Cost of rations per head, per diem, at encampment.	Nil.	Nil.	General conduct of Corps.	Good.	Good.	If any, and what casualties.	None reported.	None reported.	Whether in possession of Band. Number of Musicians, and proficiency.	Yes; 30 performers—very good.	Yes; 20 performers—very good. As reported.	General State of Clothing, Arms and Accoutrements.	Very fair.	Very fair state and condition.	Nature of Movements at Inspection, and how performed.	Company and battalion movements.	Company drill and skirmishing.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Reported enrolled.	Reported enrolled.	Number of Non-exercised Men, if any.	Reported enrolled.	Six Co's at 200 & 400, and two at 400 & 500 yds.	Target Practice.	Reported enrolled.	Reported enrolled.	Figure of Merit.	15-65	12-95	Date of Inspection.	Aug 31.	July 1.	Date when drill was completed.	Aug. 31.	July 1.	REMARKS.	This Regiment is very much improved; consists of a fine body of men; moved very well.	Inspected by the Commanding Officer and Field Officers of the Regiment. Reported favorably. Best shot in the Battalion, Sergt. Redford, No. 1 Co.—41 points. Best shooting Company, No. 6 Co.—17-26 points.
	Nil.	Nil.																Company and battalion movements.	Company drill and skirmishing.	Reported enrolled.	Reported enrolled.	Six Co's at 200 & 400, and two at 400 & 500 yds.	Target Practice.	Reported enrolled.	Reported enrolled.	15-65	12-95	July 1.	Aug. 31.	July 1.	This Regiment is very much improved; consists of a fine body of men; moved very well.	Inspected by the Commanding Officer and Field Officers of the Regiment. Reported favorably. Best shot in the Battalion, Sergt. Redford, No. 1 Co.—41 points. Best shooting Company, No. 6 Co.—17-26 points.									

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Mode.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 2.—Continued.		Corps.		Corps.		Place,	Date.	Number of days' drill performed.				
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.				N. - C. O. and Men.			
13th Battalion		Lieut.-Col. Skinner, Hamilton.										
No. 1 Company		Capt. & Lieut.-Col. Gibson, Hamilton	3	55	2	35	Hamilton.	Oct. 10.	8	Not under canvas.	Nil.	Nil.
No. 2 do		Lieut. Bernard, Hamilton	3	55	2	34		do 10.	8			
No. 3 do		Capt. Armstrong, Hamilton	3	55	2	24		do 10.	8			
No. 4 do		Capt. McLaren, Hamilton	3	55	2	38		do 10.	8			
No. 5 do		Capt. Caddy, Hamilton	3	55	2	33		do 10.	8			
No. 6 do		Bt.-Major Moore, Hamilton	3	55	2	38		do 10.	8			
		Staff	8		4							
		Total	26	330	16	202						
19th Battalion		Lieut.-Col. Currie, St. Catharines					Head Quarters of Companies.			do	Nil.	Nil.
No. 1 Company		Bt.-Major Thompson, Niagara	3	55	2	45		Oct. 9.	8			
No. 2 do		Ensign Day, St. Catharines	3	55	1	42		do 9.	8			
No. 3 do		Capt. Carlisle, St. Catharines.	3	55	2	38		do 9.	8			
No. 4 do		Bt.-Major Walker, Beamsville	3	55	2	42		do 9.	8			
No. 5 do		Capt. Brennan, St. Catharines.	3	55	1	42		do 9.	8			
No. 6 do		Capt. Hiscott, Virgil	3	55	2	42		do 9.	8			
		Staff	7									
		Total	25	330	10	251						

performed the Annual Drill for 1876-77.—Continued.

Time Required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.	Date of Inspection.	Date when drill was completed.	REMARKS.
24 hours.	Nil.	Good.	None reported.	Yes; 33 performers—very good.	Very fair state and condition.	Firing exercises and battalion movements.	Reported enrolled.									
do	do	do	do	Yes; 18 performers—good. As reported.	do	Inspected by the Major-General Commanding.	do							Oct. 13.	Oct. 13.	Inspected by the Major-General Commanding.
														do 13.	do 13.	
														do 13.	do 13.	
														do 13.	do 13.	
														do 13.	do 13.	
														do 30.	do 30.	
														do 30.	do 30.	
														do 30.	do 30.	
														do 30.	do 30.	
														do 30.	do 30.	Was inspected in the Battalion Drill Shed. Regiment mustered well. Very steady and soldierlike.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2.—Continued.			Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N. C. O. and Men.	Officers.				N. C. O. and Men.	
20th Battalion		Lieut.-Col. Murray, Milton								
No. 1 Company		Capt. Albertson, Oakville	3	55						
No. 2 do		Capt. Applebee, Stewarton	3	55						
No. 3 do		Capt. Barber, Georgetown	3	55						
No. 4 do		Capt. Curry, Norval	3	55						
No. 5 do		Capt. Kerns, Nelson	3	55						
No. 6 do		Capt. Shaw, Acton	3	55						
No. 7 do		Capt. Panton, Milton	3	55						
		Staff	7							
		Total	28	385						
31st Battalion		Lt.-Col. Brodie, Owen Sound								
No. 1 Company		Capt. Butchart, Owen Sound	3	55	2	42		Oct. 2..	8	
No. 2 do		Capt. McGee, Meaford	3	55	2	32		Sept. 20..	8	
No. 3 do		Capt. Telford, Leith	3	55	2	33		do 26..	8	
No. 4 do		Capt. Moodie, Durham	3	55	1	35		do 24..	9	
No. 5 do		Major Boyd, Owen Sound	3	55	2	42		do 25..	8	
No. 6 do		Lieut. Campbell, Flesherton	3	55	2	26		do 25..	8	
No. 7 do		Capt. Rorke, Clarksburgh	3	55	2	31		do 25..	8	
		Staff	7		5					
		Total	28	385	18	241				
							At Head Quarters of Companies.			
									Not under canvas.	
									Nil.	
									Nil.	

performed the Annual Drill for 1876-77.—*Continued.*

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.		
								Battalion.	Figure of Merit.					
								Company.						
24 hours.	Nil.	Good.	None reported.	Yes; 22 performers—good, as reported.	Very fair—no knapsacks.	Company drill and skirmishing.	Reported enrolled.				Oct. 5.. Sept.23.. do 30.. do 28.. Oct. 3.. Sept.28.. do 29..	Oct. 5.. Sept.23.. do 30.. do 29.. Oct. 3.. Sept.28.. do 29..	Not required to perform Annual Drill, 1876-77.	Inspected by the Commanding Officer of the Regiment. Reports favorably.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles M	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Place.	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.				Officers.	N.-C. O. and Men.	
34th Battalion		Lt.-Col. Wallace,								
No. 1 Company		Whitby								
		Capt. Fothergill,	3	55						
No. 2 do		Whitby								
		Capt. Smith,	3	55						
No. 3 do		Oshawa								
		Capt. Farewell,	3	55						
No. 4 do		Oshawa								
		Capt. Patterson,	3	55						
No. 5 do		Beaverton.....								
		Capt. & Lt.-Col.	3	55						
No. 6 do		McMillan, Port								
		Perry.....	3	55						
No. 7 do		Capt. White,	3	55						
		Brooklin.....								
		Capt. Lumsden,	3	55						
		Cannington.....								
		Staff.....	7							
		Total	28	385						
35th Battalion		Lt.-Col. McKen-								
		zie, Barrie.....								
No. 1 Company		Lieut. Rawson,	3	55	1	31	Sept. 11..	8		
		Barrie.....								
No. 2 do		Capt. Hamilton,	3	55	2	38	July 31..	8		
		Collingwood...								
No. 3 do		Capt. Cook,	3	55	2	42	Oct. 18..	8		
		Cookstown								
No. 4 do		Capt. Ward,	3	55	1	40	Sept. 11..	8		
		Vespra								
No. 5 do		Capt. McKenzie,	3	55	2	42	do 11..	8		
		Barrie.....								
No. 6 do		Capt. Clark, Oro.	3	55	1	41	Nov. 8..	8		
		Orillia								
No. 7 do		Capt. Burnett,	3	55	2	30	July 11..	8		
		Orillia								
No. 8 do		Lt. Sutherland,	3	55	1	42	Sept. 25..	8		
		Bond Head.....								
No. 9 do		Capt. McLaren,	3	55	2	41	Oct. 25..	8		
		Rosemont.....								
No. 10 do		Lieut. Anderson,	3	55	1	36	July 3..	8		
		Wyebridge.....								
		Staff.....	8		8					
		Total.....	38	550	23	383				

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
							Number of Non-exercised Men, if any. Ranges.	Figure of Merit.			
Battalion.	Company.						Battalion.	Company.			
24 hours.											
Nil.											
Good.											
None reported.											
Yes; 16 performers—good, as reported.			Yes; 16 performers—very good, as reported.								
Arms and accoutrements in fair condition; require a new issue of clothing.											
Company and battalion drill.											
Reported enrolled.											
									Sept. 14..	Sept. 14..	
									Aug. 10..	Aug. 10..	
									Oct. 21..	Oct. 21..	
									Sept. 14..	Sept. 14..	
									do 14..	do 14..	
									Nov. 11..	Nov. 11..	
									July 17..	July 17..	
									Sept. 28..	Sept. 28..	
									8-68 Oct. 28..	Oct. 28..	
									July 28..	July 11..	
											Not required to perform Annual Drill, 1876-77.
											Five Companies inspected by Lt.-Col. Denison, Brigade Major — remainder by Commanding Officer and Field Officer of the Regiment. Report favorable.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.		Corps.		Date.	Number of days' drill performed.			
		Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
36th Battalion	Lt.-Col. Gracy, Brampton									
No. 1 Company	Capt. Scott, Brampton	3	55							
No. 2 do	Capt. Parsons, Orangeville	3	55							
No. 3 do	Capt. Tye, Brampton	3	55							
No. 4 do	Lieut. Wolfe, Albion	3	55							
No. 5 do	Capt. Brewster, Alton	3	55							
No. 6 do	Capt. Smith, Elba	3	55							
No. 7 do	Capt. Allen, Mono Mills	3	55							
No. 8 do	Capt. McCollum, Tullamore	3	55							
No. 9	Charleston	3	55							
	Staff	8								
	Total	35	495							
37th Battalion	Lieut.-Col. Davis, York									
No. 1 Company	Capt. Williamson, York	3	55	2	29		8			
No. 2 do	Capt. Nelles, Caledonia	3	55	2	30		8			
No. 3 do	Capt. Glenn, Hagerville	3	55	2	30		8			
No. 4 do	Capt. Ryan, Hills-ville	3	55	2	30		8			
No. 5 do	Capt. Goodwin, Cheapside	3	55	2	28		8			
No. 6 do	Capt. Whiddon, Caledonia	3	55	1	25		8			
No. 7 do	Capt. Musson, Mount Healey	3	55	2	30		8			
	Staff	8		5			8			
	Total	29	385	18	202					

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations, per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps, were <i>longa file</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Date of Inspection.	Date when drill was completed.	REMARKS.
24 hours.	Nil.	Good.	None reported.	Yes; 20 performers—very good, as reported.											
					Very fair.										
					Squad and company drill—manual and firing exercises.										
					Reported enrolled.										
												23rd June.			
													24th June.	Not required to perform Annual Drill, 1876-77.	
														Inspected by the Officer commanding the Regiment. Report favorable.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days drill performed.			
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
38th Battalion		Lieut.-Col. Dickie Brantford					At Head Quarters of Company.				Not under canvas.	Nil.
No. 1 Company		Capt. Cox, Paris.	3	55	2	30		Oct. 31.	8			
No. 2 do		Capt. Kerr, Brantford	3	55	2	30		do 23.	8			
No. 3 do		Capt. Wilkes, Brantford	3	55	1	29		do 23.	8			
No. 4 do		Capt. Bellachey, Brantford	3	55	2	30		do 23.	8			
No. 5 do		Capt. Wetmore, Burford	3	55	2	30		do 19.	8			
No. 6 do		Drumbo	3	55	2	30		do 17.	8			
		Staff	7		2							
		Total	25	330	13	179						
39th Battalion	3	Lieut.-Col. Mabee Simcoe										
No. 1 Company		Capt. Coombs, Simcoe	3	55								
No. 2 do		Capt. Thompson, Villa Nova	3	55								
No. 3 do		Capt. Ryan, Port Rowan	3	55								
No. 4 do		Capt. Morgan, Walsingham	3	55								
No. 5 do		Capt. Yerks, Waterford	3	55								
No. 6 do		Capt. Matheson, Simcoe	3	55								
No. 7 do		Capt. Green, Windham Centre	3	55								
No. 8 do		Capt. Crysler, Fredricksburgh	3	55								
		Staff	8									
		Total	32	440								

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
										Battalion.	Company.			
24 hours.	Nil.	Good.	None reported.	Yes; 21 performers—good, as reported.	do	Company and battalion movements.	o			 Nov. 3. Nov. 3.	Inspected Nos. 2, 3 and 4 Companies at Brantford; mustered well; very steady; moved well; much improved.	
											..... Oct. 30.	..... Oct. 30.
											..... do 30.	..... do 30.
											22-09 Sept. 22.	Sept. 22.		
											..... Oct. 20.	..... Oct. 20.
				Yes; 18 performers—very good, as reported.										Not required to perform Annual Drill, 1876-77.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 2.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles, Distance the several Corps had to proceed to Muster and mode of transport.
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.				N.-C. O. and Men.	
44th Battalion		Lt.-Col. Barnett, Clifton								
No. 1 Company		Capt. Bender, Drummondville	3	55						
No. 2 do		Capt. James, Thorold	3	55	2	42		Nov. 16.	8	
No. 3 do		Capt. M. J. Beam, Chippawa	3	55	2	42		do 16.	8	
No. 4 do		Cpt. Newbigging, Fort Erie	3	55	1	42		do 20	8	
No. 5 do		Capt. Hamilton, Welland	3	55						
No. 6 do		Capt. Tattersall, Clifton	3	55						
No. 7 do		Capt. J. G. Beam, Stevensville	3	55	2	42		Nov. 20.	8	
No. 8 do		Capt. Haney, Fenwick	3	55	2	42		do 20.	8	
		Staff	7							
		Total	31	440	9	210				
77th Battalion		Lt.-Col. Brown, Dundas								
o. 1 Company		Capt. Ogg, Dundas	3	55	2	33		Sept. 11.	8	
No. 2 do		Capt. McMonies, Waterdown	3	55	2	28		Nov. 9.	8	
No. 3 do		Capt. Hoey, Binbrook	3	55	2	36		Oct. 9.	8	
No. 4 do		Capt. Bertram, Rockton	3	55	2	25		Nov. 14.	8	
No. 5 do		Capt. Carpenter, Saltfleet	3	55	2	42		Sept. 11.	8	
No. 6 do		Lieut. Walker, Glanford	3	55	2	39		do 11.	8	
		Staff	7							
		Total	25	330	12	203				
Independent Rifle Company, Sault Ste. Marie	1	Capt. Wilson, Sault Ste. Marie.	3	55						
		Total, Military District No. 2.	530	7,335	215	3,290				

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
								Figure of Merit.				
24 hours.	Nil.	Good.	None reported.	Yes; 22 performers—good, as reported.	Very fair.	Company drill.	Reported enrolled.			Nov. 24.	Nov. 24.	Nos. 1, 5 and 6 Companies have not performed Annual Drill. Remainder inspected by Lieut.-Col. Villiers, Bde.-Major. Report favorable.
do	Nil.	Good.	do	Yes; 24 performers—very good, as reported.	do	do	do			Nov. 23.	Nov. 23.	
										do 24.	do 24.	
										Nov. 24.	Nov. 24.	
										do 23.	do 23.	
										do 23.	do 23.	
										Nov. 23.	Nov. 23.	
										do 24.	do 24.	
										Sept. 14.	Sept. 14.	Inspected by Lieut.-Col. Brown, commanding the Regiment. Report favorable.
										Nov. 13.	Nov. 13.	
										Oct. 12.	Oct. 12.	
										Nov. 17.	Nov. 17.	
										Sept. 13.	Sept. 14.	
										do 14.	do 14.	
												Annual Drill not performed.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
No. 3			Corps.	Corps.	Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.		Officers.				N. - C. O. and Men.	Officers.	N. - C. O. and Men.	Nil.
Lieut.-Col. B. VAN STRAUBENZIE, D.A.G.M.									
48th Battalion, Lennox and Addington.....		Lieut. - Col. S. Fairfield, Odessa						No billets.	
No. 1 Company		Lieut. Cox, Jamesworth		2	42	1	42		Jamesworth July 28. 8
No. 2 do		Capt. R. McLean, Clark's Mills		2	42	1	36		Clark's Mills do 1. 8
No. 3 do		Capt. J.F. Booth, Odessa		2	42	1	38		Odessa do 8. 8
No. 4 do		Capt. J. Murray, Amherst Island		2	42	1	38		Amherst Is-land Sept. 20. 8
No. 5 do		Capt. A. Amey, Enterprise		2	42	1	34		Enterprise July 7. 8
No. 6 do		Capt. J. Amey, Odessa		2	42	1	42		Odessa do 8. 8
		Staff		8		2			
		Total		20	252	8	230		
49th Battalion		Lieut.-Col. Browne M.P., Belleville						In billets... Nil.	
No. 1 Company		Capt. Harrison, Belleville		2	42	2	40		Belleville Oct. 10. 8
No. 2 do		Capt. Fidan, Sterling		2	42				
No. 3 do		Major Vandervort, Sydney		2	42	2	40		Sydney Oct. 19. 8
No. 4 do		Capt. Hungerford, Madoc		2	42				
No. 5 do		Capt. Lennox, Melrose		2	42	2	42		Melrose Oct. 22. 8
		Staff		8		3			
		Total		18	210	7	122		

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.						
								Number of Non-exercised Men, if any.	Figure of Merit.									
								Ranges.	Battalion.	Company.								
6 hours.		Good.	None.	Yes; 16 musicians—fair.	Clothing fair; arms and accoutrements fair.	Nos. 1, 2.—Co'y. drill, manual and firing exercise, fair. Nos. 3, 6.—Company drill, manual and firing exercise and skirmishing—fair. No. 4.—Co'y. drill, manual and firing exercise, indifferent. No. 5.—Company drill, fair only.	Stated to be so.	None.	1	None.	3	None.	17-39	21-42	July 15.	July 15.	This Battalion was inspected throughout by the Deputy Adjutant General.	
		Good.	None.					None.	1	None.	3	None.	12-90	do	14.	do		14.
		20 musicians—good.						206, 400 and 500 yards.					22-78	do	15.	do		15.
													21-00	Sept. 21.	Sept. 21.	Sept. 21.		
													5-04	July 13.	July 13.	July 13.		
6 hours.		do											20-42	do	15.	15.	15.	Have not been drilled. Inspected by Brigade Major. Have not been drilled.
													31-23	Nov. 28.				
													18-00	do	23.	Nov. 1.	Nov. 1.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
No. 3.—Continued.		Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
57th Battalion.....	Lieut. - Col. E. Poole, Peterboro'								At Company Head Quarters.	
No. 1 Company ...	Capt. W. Johnston, Peterboro'	2	42	2	38	Peterboro'	July 20.	8		
No. 2 do ...	Capt. J. Kennedy, Peterboro'	2	42	2	41	do	Sept. 4.	8		
No. 3 do ...	Capt. J. Burnham, Peterboro'	2	42	2	31	do	do 4.	8		
No. 4 do ...	Capt. W. Green, Ashburnham	2	42	2	42	Ashburnh'm	do 2.	8		
No. 5 do ...	Capt. T. Grover, Norwood	2	42	2	34	Norwood	do 7.	8		
No. 6 do ...	Capt. J. Howard, Hastings	2	42	1	42	Hastings	Aug. 20.	8		
	Staff	8		2						
	Total	20	252	13	228					
45th Battalion, West Durham.....	Lieut.-Col. F. Cubitt, Bowmanville								Company Head Quarters.	Nil.
No. 1 Company ...	Capt. W. Scott, Bowmanville	2	42	2	32	Bowm'nville	July 1.	8		
No. 2 do ...	Capt. J. Kennedy, Fenelon Falls	2	42	2	41	Fen'lon Falls	do 1.	8		
No. 3 do ...	Capt. J. Hughes, Burtonville	2	42	2	42	Cartwright..	do 1.	8		
No. 5 do ...	Capt. W. Cottingham, Omemee	2	42	2	39	Omemee	do 1.	8		
No. 6 do ...	Capt. J. Thurkell, Lindsay	2	42	2	42	Lindsay	do 1.	8		
No. 7 do ...	Lieut. Stanton, Kendall	2	42	2	29	Kendall	do 1.	8		
	Staff	8		2						
	Total	20	252	14	225					

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Not-exercised Men, if any.	Ranges.	Figure of Merit.	Target Practice.
6 hours.	1 hour	36 hours at Peterboro'.								REMARKS
Good.	Good.	Good.								
None.	None.	Brass; 21 performers; cost \$600.								
F. Good.	F. Good.	Clothing, arms and accoutrements not in good order.								
F. Fair	F. Fair	The drill of all this Battalion was in-differently performed.								
F. Good.	F. Good.	Stated to be so.								
F. Fair	F. Fair	All.	6	5	2	1				
F. Good.	F. Good.	200, 300 and 400 yards.								
F. Fair	F. Fair	Figure could not be ascertained, as Companies fired at different distances.								
F. Good.	F. Good.	9:04	Sept. 24.	Sept. 21.						
F. Fair	F. Fair	18:36	do 23.	do 13.						
F. Good.	F. Good.	11:29	do 13.	do 12.						
F. Fair	F. Fair	14:40	do 14.	do 14.						
F. Good.	F. Good.	Fig. not estab'd.	do 14.	do 14.						
F. Fair	F. Fair	13:04	do 15.	Aug. 31.						
F. Good.	F. Good.	Inspected by the Deputy Adjutant General								
F. Fair	F. Fair	Inspected by D. A. G. Not exercised.								
F. Good.	F. Good.	do								
F. Fair	F. Fair	None.								
F. Good.	F. Good.	200, 400 and 500 yards.								
F. Fair	F. Fair	13:70								
F. Good.	F. Good.	8:00	July 27	July 27.						
F. Fair	F. Fair	do	do 1.	do 11.						
F. Good.	F. Good.	do	do 8.	do 8.						
F. Fair	F. Fair	do	do 10.	do 10.						
F. Good.	F. Good.	2:17	do 10.	do 10.						
F. Fair	F. Fair	do	do 7.	do 7.						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 3.—Continued.			Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
46th Battalion, East Durham		Lieut.-Col. A. Williams, Port Hope										
No. 2 do		Capt. Dingwall, Port Hope	2	42	2	35	Port Hope	July 12.	8	Company Head Quarters.	Nil.	
No. 3 do		Major F. Benson, Port Hope	2	42	2	42	do	do 12.	8			
No. 4 do		Capt. J. Hunter, Millbrook	2	42	2	36	Millbrook	do 12.	8			
No. 5 do		Capt. J. Dundas, Springville	2	42	2	*42	Springville	do 12.	8			
No. 6 do		Capt. J. Preston, Lifford	2	42	2	42	Lifford	do 15.	8			
No. 7 do		Brevet Major J. McDermott, Janetville	2	42	2	41	Janetville	do 14.	8			
		Staff	8		2							
		Total	20	252	14	238						
47th Battalion, Frontenac		Lieut.-Col. G. Kirkpatrick, Kingston										
No. 1 Company		Capt. R. Hewton, Battersea	2	42	2	40	Battersea	Sept. 10.	8	do	Nil.	
No. 2 do		Capt. W. Hunter, Inverary	2	42	2	41	Inverary	June 28.	8			
No. 3 do		Capt. W. Spooner, Eglinburg	2	42	2	42	Eglinburg	do 30.	8			
No. 4 do		Capt. T. Kelly, Portsmouth	2	42	2	42	Portsmouth	July 6.	8			
No. 5 do		Capt. J. Byrne, Barriefield	2	42	2	42	Barriefield	do 6.	8			
No. 6 do		Capt. J. Radford, Wolfe Island	2	42	2	33	Wolfe Island	Oct. 20.	8			
No. 7 do		Capt. A. Carscalen, Harr'wsmith	2	42	2	42	Harr'wsmith	Sept. 4.	8			
		Staff	8		2							
		Total	22	294	16	282						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.				Number of days' drill performed.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
16th Battalion, Prince Edward		Lt Col. W. Ross, -Picton.....									
No. 1 Company		Capt. J. Fralick, Picton.....	2	42							
No. 2 do		Capt. W. Patter- son, Wellington	2	42							
No. 3 do		Capt. A. R. McDon- ald, Consecon..	2	42							
No. 4 do		Capt. M. Ostran- der, Milford.....	2	42							
No. 5 do		Capt. Alva. Van- duson, Milford.	2	42							
No. 6 do		Capt. E. W. John- son, Picton.....	2	42							
No. 7 do		Capt. W. A. Patter- son, Amel'sburg	2	42							
No. 8 do		Capt. W. R. Demp- sey, Rednersville	2	42							
		Staff.....	8								
		Total.....	24	336							
40th Battalion, North'mberland		Lt.-Col. W. Smith, Cobourg.....									
No. 1 Company		Major V. Gravely, Cobourg.....	2	42							
No. 2 do		Capt. G. Guillet, Cobourg.....	2	42	2	42	Cobourg.....	Nov.....	8	City...	None.
No. 3 do		Capt. R. H. Bonny- castle, C'bellford	2	42							Marched
No. 4 do		Capt. C. Butler, Brighton.....	2	42	2	42	Brighton.....	Sept.....	8	Drill Shed	2 Marched
No. 5 do		B.-Major C. Clif- ford, Cold Springs	2	42							
No. 6 do		Capt. R. J. Rogers, Grafton.....	2	42							
No. 7 do		Capt. A. Vars, Colborne.....	2	42							
No. 8 do		Capt. W. Duncan, Castleton.....	2	42							
No. 9 do		Capt. Hurlburt, Warkworth.....	2	42							
		Staff.....	8		2						
		Total.....	26	378	6	84					

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.	
No. 3.—Continued.			Corps.	Corps.	Place.	Date.	Number of days' drill performed.				
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers N.-C. O. and Men.	Officers N.-C. O. and Men.	Officers N.-C. O. and Men.				Officers N.-C. O. and Men.	Place.	Date.	Number of days' drill performed.	Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
14th Battalion P.W.O. Rifles	Lt.-Col. D. Callaghan, Kingston										
No. 1 Company	Capt. Gorden, Kingston	2	42	2	42	Drill Shed, Kingston	June 18.	8			
No. 2 do	R. W. Barrow, Kingston	2	42		42	do	do 18.				
No. 3 do	J. W. Power, Kingston	2	42	2	42	do	do 18.	8			
No. 4 do	— Wilkinson, Kingston	2	42	2	42	do	do 18.	8			
No. 5 do	E. H. Dickson, Kingston	2	42	2	42	do	do 18.	8			
No. 6 do	P. Bajus, Kingston	2	42	2	42	do	do 18.	8			
	Staff	8		2							
	Total	20	252	12	210						
15th Battalion Argyll Light Infantry	Lt.-Col. Campbell, Belleville										
No. 1 Company	Capt. J. A. Crozier, Belleville	2	42								
No. 2 do	Capt. J. D. Clarke, Belleville	2	42								
No. 3 do	Capt. A. Farly, Belleville	2	42								
No. 4 do	Capt. L. A. Appleby, Shannonville	2	42								
No. 5 do	Lieut. W. Buller, Belleville	2	42								
No. 6 do	Major Dunough, Belleville	2	42								
	Staff	8									
	Total	20	252								

In City. Nil. Nil.

performed the Annual Drill for 1876-77.—Continued.

3 hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
									Number of Non-exercised Men, if any.	Ranges.				Battalion.	Company.	Figure of Merit.
None.													
Good.													
None.													
Brass; 16 performers. Cost, \$1,100.													
Those seen on parade in good order.													
Battalion movements under the Colonel, good. Manual and firing exercise under Capt. Smythe, Adjutant, well performed. Skirmishing and firing blank cartridge, good.													
Stated to be so.													
None.													
200, 400 and 500 yards.													
									11-84				
									9-51	July 13.	July 13.	Inspected y the D. A. G. Not called out.	
									do	do	do		
									8-00	do	do	Inspected by the D. A. G.	
									do	do	do		
									7-35	do	do		
									do	do	do		
									7-66	do	do		
									do	do	do		
									11-70	do	do		
									do	do	do		
												This Battalion was not ordered to be exercised this year.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 3.—Continued.		Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N - C. O. and Men.	Officers.				N - C. O. and Men.		
3rd Prov. Regiment of Cavalry		Lt.-Col. D'Arcy Boulton, Co-bourg									
No. 1 Troop		Capt. Regan, Co-bourg	2	42							
No. 2 do		Lt.-Col. Smart, Port Hope	2	42	2	29	Peterboro'	Sept. 18.	8	In billets.	31
No. 3 do		Bt. Major Rogers, Peterboro	2	42	2	32	do	do 18.	8		
		Staff	7		2						At Troop Headquarters.
4th Prov. Regiment of Cavalry		Lt. - Col. John Duff, Kingston									
No. 1 Troop		Capt. Knight, Kingston	2	42	2	32	Kingston	July 1.	8		
No. 2 do		Capt. Perry, Napanee	2	42						do	
No. 3 do		Lt.-Col. Wood, Loughboro	2	42	2	32	Loughboro'	do 1.	8		
No. 4 do		Major White, Picton	2	42	2	33	Picton	do 2.			
		Staff	7		2						In City. In Village. In Town. Marched.

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.	Date of Inspection.	Date when drill was completed.	REMARKS.
3 days at Kingston.	35 cents.	Good.	None.	Yes; 16 performers, mounted.	Very good—the arms and accoutrements.	Marched past at trot, walk and gallop; several manoeuvres well performed; sword exercise under Lt.-Col. D'Arcy Boulton well performed.	Stated to be so.	None.	200, 300 and 400 yards.	17 60			Sept. 21.	Sept. 23.	Not called for drill. Inspected by the D. A. G. The equipment of No. 1 Troop is now complete.	
2 days at Cobourg.	Good.	No Band.		Arms and accoutrements good.	Some movements slowly performed fairly done; sword exercise fairly done. Marched past and some movements fairly done; could not do sword exercise.	No rifle practice.	Nil.	Nil.	Nil.	July 4.	July 4.	do 4.	do 4.	do 4.	Did not exercise. Inspected by the D. A. G., &c.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.		
			Corps.	Corps.	Place.	Date.	Number of days' drill performed.				
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers. N.-C. O. and Men.	Officers. N.-C. O. and Men.	Place.				Date.	Number of days' drill performed.	Whether in Camp or otherwise.	Miles.	Mode.
Kingston Field Battery	Lt.-Col. Kirkpatrick, Kingston	6	75, and 62 horses	5	55, and horses 28.	Kingston.....	Sept. 1.	12	In camp.	5	do
Durham Field Battery	Capt. W. Graham, Port Hope.....	6	75, and 62 horses.	6	74, and 28 horses.	Port Hope.....	.....	12	do	1	do
Cobourg Garrison Battery.....	Capt. Dumble, Cobourg	2	42	2	36	Cobourg.....	June 19.	8	In billets.	1	do
Port Hope Garrison Battery.....	Lieut. Wallace, Port Hope.....	2	42	1	34	Port Hope....	Sept. 21.	8	do	1	do

Performed the Annual Drill for 1876-77.—*Continued.*

3 hours.	2 hrs. at Cobourg	2 days at Fort Hope.	1 day at Kingston.	Time required to concentrate the Battalion or Corps.
Nil.	Nil.	25 cents allowed by Government.	25 cents allowed by Government.	Cost of rations per head, per diem, at encampment.
Good.	Good.	Good.	Good.	General conduct of Corps.
None.	None.	None.	None.	If any, and what casualties.
No.	No.	None.	None.	Whether in possession of Band. Number of Musicians, and proficiency.
Very good.	Very good.	Good.	Clothing good. Arms & accoutrements in excellent order.	General State of Clothing, Arms and Accoutrements.
All badly done	Artillery gun drill, M. and F. exercises were well performed.	Marched past and various movements. See report of Inspector of Artillery, Lt.-Col. Strange.	Marched past and various movements done very well. See report of Inspector of Artillery in Ontario.	Nature of Movements at Inspection, and how performed.
No. 6 men did not belong to the corps	do	do	do	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.
Not exercised.	do	do	do	Number of Non-exercised Men, if any.
Nil.	Nil.	Nil.	Nil.	Ranges.
Nil.	Nil.	Nil.	Nil.	Battalion.
Nil.	Nil.	Nil.	Nil.	Company.
Sept. 23.	June 27.	June 28.	July 12.	Date of Inspection.
Sept. 23.	June 28.	July 1.	July 12.	Date when drill was completed.
This Battery did not do well.	See Inspector's Report.	Inspected by the D. A. G., and by Lieut.-Col. Strange.	Inspected by the D. A. G., and Inspector of Artillery for Ontario.	REMARKS.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 3.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster and mode of transport.
			Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
Trenton Garrison Battery.....		Capt. W. Day, Trenton	2	42	2	42	Trenton	Nov. 19.	8	do	1	do
Napanee Garrison Battery.....		Capt. E. Hooper, Napanee	2	42	.....	.....				

Performed the Annual Drill for 1876-77.—Continued.

2 hours.	Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Target Practice.	Date of Inspection.	Date when drill was compl	REMARKS.
			If any, and what casualties.				Ranges.	Battalion.	Figure of Merit.			
								Company.				
Nil.	Good.	No.	Good.	Gun drill, M. and F. exercise airy done.	Stated to be so	No.	Nil.	Nil.	Nil.	Nov. 5.	Nov. 25.	Inspected by the Brigade Major and Inspector of Artillery.
												Were not called out for drill for 1876-7.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 4. Lieut.-Col. W. H. JACKSON, D.A.G.M.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Place	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.				Officers.	N.-C. O. and Men.	
Prescott Troop Cavalry		Capt. Raney, Prescott.....	3	42	2	32	Prescott.....	June 20.	8	Head Quarters.
Ottawa Troop Cavalry		Capt. Sparks, Ottawa.....	3	42	1	33	Ottawa	July 2.	8	do

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.	
								Number of Non-exercised Men, if any.	Figure of Merit.				
								Battalion.	Company.				
					Clothing serviceable. Chain bits, etc, rusty.	Marching past as a Troop & Squadron, and ranked past in fours. Mounted sword exercise. Dismounted skirmishing with blank firing. Column & changing front. All fairly performed.	Yes.			June 23.	June 23.	34 horses.	Did not perform target practice.
					Clean and serviceable.	Line and column movements. Fours and mounted sword exercise. Not much precision in drill. Men clean and intelligent. Horses good.				July 6.	July 6.	34 horses.	Did not perform target practice.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 4.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, Mode, and mode of transport.			
Battalion or Corps.	Companies. Commanding Officer and Head Quarters	Corps.	Officers.	N.-C. O. and Men.	Corps.	Officers.	N.-C. O. and Men.			Place.	Date.	Number of days' drill performed.
Ottawa Field Battery.....	Capt. Stewart, Ottawa.....	6	75	5	71	Ottawa.....				12	Camp.	
Gananoque Field Battery.....	Major McKenzie, Gananoque.....	6	75	6	52	Gananoque	June 26			12	do	

Performed the Annual Drill for 1876-77.—Continued.

Time Required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.	Date of Inspection.	Date when drill was completed.	REMARKS.
	25 cts. per man per diem for rations. 35 cts. per horse per diem for forage.															
do				A good brass band, 16 strong.	Clean and serviceable. Trowsers much worn.	Field movements. Firing & standing gun drill; competitive driving, etc. See Report of Inspector of Artillery.								Sept. 2.		See Inspector of Artillery report. 28 horses.
				Clean and serviceable.		Field movements. Firing. Standing gun drive. Taking up defensive position, &c. See Report of Inspector of Artillery.								July 4.		See Inspector of Artillery report. 28 horses.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.			Establishment.	Actual Strength present at Inspection.	Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
No. 4.—Continued.			Corps.	Corps.	Place,	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers. N - C. O. and Men.	Officers. N - C. O. and Men.					
Ottawa Brigade Garrison Artillery.....			Lt.-Col. Egleson, Ottawa						
No. 1 Battery....		Capt. Evans do..	3	42	2	42			
No. 2 do		Capt. Patrick do..	3	42	3	42			
No. 3 do		Lt. Walker, Gloucester.....	3	42	1	36			
No. 4 do		Lt. Grant, Ottawa	3	42	1	42			
No. 5 do		Lt. Maingy do..	3	42	2	43			
No. 6 do		Lt. Mara do..	3	42	0	42			
No. 7 do		Capt. Ryan do..	3	42	1	42			
		Staff.....	8		5	2			
		Total	29	294	15	291			
Gov. General's Foot Guards....			Lt.-Col. Ross, Ottawa						
No. 1 Company....		Capt. Tilton do.	3	55					
No. 2 do		" Weatherley do	5	55					
No. 3 do		" Lee do	5	55					
No. 4 do		" Patrick do	5	55					
No. 5 do		" Todd do	5	55					
No. 6 do		" Mills do	5	55					
		Staff.....	7						
		Total	25	330					

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Date of Inspection.	Date when drill was completed.	REMARKS.
				Yes; 26; efficient.	An efficient brass and reed band, 22 strong.									
					Many deficiencies in clothing. See Brigade Major's report.									
				Not inspected by the Deputy Adjutant General, Military District No. 4.	Drill shed too small to make a satisfactory inspection. Fours, column movements and firing exercises. Good appearance. Big gun drill has been practised. <i>Esprit de corps</i> good. Promotion being blocked, there is a great want of officers.		Yes.					October 26th, 1876.		
							No returns sent in.							

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 4.—Continued.		Corps.		Corps.		Place.	Date.	Number of days drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.				N.-C. O. and Men.		
18th Battalion...		Lt.-Col. Urquhart Hawkesb'y Mills									
No. 1 Company...		Capt. Higginson, Hawkesbury.....	3	42	3	37	Company Head Quarters.	Various dates.	8	Head Quarters.	
No. 2 do		Capt. Vankleek, Vankleek Hill.....	3	42	2	40					8
No. 3 do		Capt. O'Brien, L'Original.....	3	42	1	30					8
No. 4 do		Capt. LeRoy, E. Hawkesbury.....	3	42	2	36					8
No. 5 do		Capt. Johnson, Pendleton.....	3	42							8
No. 6 do		Capt. Wymann, Hawkesb'y Mills	3	42	2	39					8
		Staff.....	8								
		Total	26	252	10	182					
41st Battalion ...	5	Lieut.-Col. Cole, Brockville.....					Company Head Quarters.	Various dates.	8	Head Quarters.	
No. 1 Company		Capt. Cook, Brockville	3	42	3	37					8
No. 2 do		Capt. Legge, Gananoque.....	3	42							8
No. 3 do		Major Lauder, Frankville.....	3	42	3	35					8
No. 4 do		Capt. Merrick, Merrickville.....	3	42	2	42					8
No. 5 do		Capt. Bell, Carle- Place	3	42	1	38					8
		Band				15					8
		Staff.....	7								
		Total	22	210	9	167					

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations, per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps, were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
Good.												
None.				None.								
An efficient brass band of 15 musicians.					Clothing old but serviceable. Arms and accoutrements clean.		Yes.					
Clothing serviceable; arms and accoutrements clean.					Manual and firing exercises. Company drill and skirmishing. No. 3 Company indifferent. Nos. 1 and 6, good. The skirmishing of the last two Companies with blank was very good. Men very clean and steady on parade.							
Manual and firing exercises, company drill and skirmishing with blank, fairly done by all the companies.							Yes.					
								6	200 and 400 yards.			
									200 and 400 yards.			
										12-00	Sept. 21.	
										23-5	do 20.	
									No return.		Oct. 6.	No. 3 Company inspected by the Brigade Major.
										23-30	Sept. 20.	Not authorized to drill.
										13-20	Sept. 21.	
										12-00	Aug. 11.	Not authorized to drill.
										21-10	Sept. 14.	
										22-05	July 14.	Nos. 1 and 5 Co's inspected by the Brigade Major.
										21-66	do 27.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 4.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
42nd Battalion...	7	Lieut.-Col. Buell, Brockville.....					Company Head Quarters.	Various dates.	8	Head Quarters.		
No. 1 Company		Capt. Macdonell, Almonte.....	3	42	1	41						8
No. 2 do		Capt. Sparham, Brockville.....	3	42	2	41						8
No. 3 do		Capt. Douglas, Perth.....	3	42	2	40						8
No. 4 do		Capt. Walker, Kinburn.....	3	42	2	39						8
No. 5 do		Capt. Cornett, Lansdowne.....	3	42	2	37						8
No. 6 do		Capt. Gould, Smith's Falls...	3	42								8
No. 7 do		Capt. Irving, Pembroke.....	3	42	1	42						8
		Band.....				20						8
		Staff.....	8									8
		Total	29	294	10	260						
56th Battalion ...	7	Lieut.-Col. Jessup Prescott.....					do	do	8	do		
No. 1 Company		Capt. Adams, Prescott.....	3	42	3	39						8
No. 2 do		Capt. Bennett, Prescott.....	3	42	1	37						8
No. 3 do		Major Campbell, Burritt's Rapids	3	42	2	42						8
No. 4 do		Capt. Chambers, Kemptville.....	3	42	2	35						8
No. 5 do		Capt. Lang, Ottawa.....	3	42	2	41						8
No. 6 do		Major Checkley, North Augusta	3	42	1	41						8
No. 7 do		Major Carmichael Spencerville ...	3	42	3	42						8
		Staff.....	8									8
		Total	29	294	14	277						

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
								Figure of Merit.				
				An efficient brass band of 20 musicians.	Clothing serviceable; arms and accoutrements clean.	Manual and firing exercises, company drill and skirmishing with blank—No. 5, indifferent; Nos. 1 and 2, fair; No. 4, good; Nos. 3 and 7, very good. The two latter very clean and steady on parade.	Yes.	3	200 and 400 yards.	No return.	Aug. 3.	
				None.	Clothing serviceable. No. 6 Co. require forage caps. Arms and accoutrements clean.	Manual and firing exercises, company drill and skirmishing with blank—No. 4, indifferent, physique poor; Nos. 1, 2, fair; Nos. 3, 6, 7, good; No. 5, physique and general appearance, very good; efficiency, fair.	do	200 and 400 yards.	20-00	Nov. 17.		
									17-17	Oct. 12.		
								Did not fire.	20-13	July 6.		
								No return.	21-11	Dec. 1.		
									11-03	July 6.		
									30-20	Aug. 2.		
									29-66	Oct. 28.		
									17-00	Aug. 29.		
									19-47	Sept. 13.		
												Not authorized to drill.
												Inspected by Brigade Major. Four men in No. 2 Company too small; ordered their discharge.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 4.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.				N.-C. O. and Men.	
59th Battalion ...	7	Lt.-Col. Bergin, Cornwall								
No. 1 Company ...		Capt. Callaghan, Cornwall	3	42	2	42	Company Head Quarters.	Various dates.	8	Head Quarters.
No. 2 do ...		Capt. Davey, Cornwall	3	42	3	43				
No. 3 do ...		Capt. Adams, Cornwall	3	42	3	40				
No. 4 do ...		Capt. McLennan, Lancaster	3	42	2	38				
No. 5 do ...		Capt. Baker, Far-ran's Point	3	42	2	42				
No. 6 do ...		Capt. Bullock, Lunenburg	3	42						
No. 7 do ...		Capt. McDiarmid, Athol	3	42	2	42				
		Staff	8							
		Total	29	294	14	246				
Metcalfe Infantry Company		Capt. Morgan, Metcalfe	3	42	3	40	Metcalfe.	do	8	do

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps if any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.					
									Battalion.	Company.								
														Figure of Merit.				
		None.	A band of nine musicians; fairly efficient.	Clothing serviceable. Arms and accoutrements generally clean.	Manual and firing exercises, company and battalion drill, and skirmishing with blank. Nos. 1, 2 and 3, fair; No. 4, good; Nos. 5 and 7, very good.	Yes.	200 and 400 yards.			18-09 July 7.	18-09 do 7.	19-32 do 7.	8-79 Sept. 16.	17-04 June 30.	12-21 July 8.	18-00 Oct. 27.	Did not compete.	One old man, 3 boys and one man with sore eyes, ordered to be struck off of No. 3 company; and two small men off of No. 1 company. No. 6 Co. not authorized to drill.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 4.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.	
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.				
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.				N. - C. O. and Men.			
Vernon Infantry Company		Capt. McGregor, Vernon.....	3	42	3	42	Vernon.	Various dates.	8	Head Quarters.		
Goulbourn Infantry Company.....		Capt. Garvin, Munster.....	3	42								

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Figure of Merit.			
								Battalion.	Company.			
					Clothing new; arms and accoutrements clean.		Yes.			15-61	Oct. 13.....	
				Manual and firing exercises and company drill, indifferent; skirmishing with blank, fair. Men clean and steady, physique good.				200 and 400 yards.				
												Not authorized to drill.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 5 Lieut.-Col. J. FLETCHER, C.M.G., D.A.G.M.			Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place	Date.			Number of days' drill performed.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.				
No. 1 Troop of Cavalry, Montreal.....		Capt. J. Tees, Montreal.....	3	35	3	24	Montreal.....	Nov. 1.	8	At Head Quarters.
St. Andrews Tr'p.....		Lt.-Col. Burwash, St. Andrews ...	3	35	2	33	St. Andrews	June 25.	8	
Cookshire do.....		Capt. French, Cookshire	3	35	Did not drill.					At Head Quarters.
Sherbrooke do.....		Cornet Read, Sherbrooke	3	35	do					
Stanstead do.....		Capt. J. Wood, Stanstead	3	35	do					
Compton do.....		Capt. Stimson, Compton	3	35	do					
Huntingdon do.....		Capt. Jas. Barr, Havelock	3	35	2	33	Covey Hill		8	
Missisquoi do.....		Capt. H. C. Bush, Clarenceville...	3	35	2	35	St. Andrews	Sept. 1.	8	In Camp.
Brome do.....		Cpt. S. N. Boright, Sutton.....	3	35	Did not drill.					
Montreal Field Battery.....		Lt.-Col. Stevenson, Montreal...	6	75	3	52	Montreal.....	Sept. 25.	12	In Camp.
Shefford Field Battery		Major Amyrauld, Granby	6	75	6	75	Granby	do 11.	12	

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS
							Number of Non-exercised Men, if any.	Hangs.			
							Battalion.	Company.			
							Figure of Merit.				
(See Report of Inspector of Artillery).		Marching past and drill movements fair.	do		do	do					
		No. 1 Troop—Marching past, field movements & skirmishing fairly done. St. Andrew's troop—Marching past, field movements, skirmishing, sword and fencing practice, well done.	do		do	do			Oct. 28.	Oct. 28.	
		200, 400.			No returns.	200, 300 and 400.	17-24		July 5.	July 5.	
		24-40							Aug. 26.	Aug. 26.	Inspected by Lt.-Col. Beacon, B.M.
											Inspected by Lt.-Col. Fletcher, D.A.G.
											Inspected by Lt.-Col. Strange, D.A.G.
											No. 1 Troop—Inspected by Major-General and Deputy Adjutant General. St. Andrew's Troop—Inspected by Lt.-Col. Bacon, B.M.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Mode.	Distance the several Corps had to proceed to Muster and mode of transport.
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.				N.-C. O. and Men.		
Montreal Garrison Artillery.....		Lt.-Col. McKay, Montreal	26	337	}						
St. Johns Garrison Artillery.....		Major Drumm, St Johns	3	55							
Montreal Engineers.....	1	Capt. Devine, Montreal	3	55	2	35	Montreal	July 1 to November 30.	8	At Head Quarters.	
Montreal Engineers.....	2	Major Kennedy, Montreal	3	55	Did not drill.						
1st. or Prince of Wales Rifles...	6	Lt.-Col. Bond, Montreal	26	335	19	242	Montreal	do	8	Battalion Head Quarters.	
3rd Batt. Victoria Volunteer Rifles.....	6	Lt.-Col. Bethune, Montreal.....	26	335	16	226	Montreal	do	8	do	

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
								Figure of Merit.				
						March past, company drill, manual and firing, well done.	do			Nov. 11.	Nov. 11.	Inspected by Major-General & Deputy Adjutant General.
						Marching past, battalion drill, manual and firing, very well performed.	do	200, 400 and 600.	29-60	do 11.	do 11.	do
						Marching past, bayonet exercise, manual and firing, battalion drill, all very well done.	do	200, 500 and 600	25-57	do 4.	do 4.	do
								No returns.				Did not drill.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Mode.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.				Number of days' drill performed.
		Officers	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
5th Royal "Fusiliers"	6 Lt.-Col. Crawford, Montreal..	26	335	22	270	Montreal	July 1 to November 30.	8	Battalion Head Quarters.	
6th Fusiliers.....	6 Lt.-Col. Martin, Montreal	25	335	15	250	Montreal	do	do	do	
11th Battalion.....	Lt.-Col. J. J. C. Abbott, St. Andrews.....									
No. 1 Company	Capt. LeRoy, St. Andrews	3	55	4	35	St. Andrews	Oct. 9.	8	At Company Head Quarters.	
No. 2 do	Capt. Jas. Smith, Dunany.....	3	55	3	42	Dunany	do 13.	8		
No. 3 do	Capt. Geo. McKnight, Shrewsbury.....	3	55	3	42	Shrewsbury.	do 13.	8		
No. 4 do	Capt. Simpson, Lachute.....	3	55	Did not drill.						
No. 5 do	Capt. Sherritt, E. Gore	3	55	2	42	E. Gore	do 11.	8		
No. 6 do	Capt. Pollock, Milles Isles.....	3	55	2	42	Milles Isles..	do 12.	8		
No. 7 do	Capt. Hoy, Carillon	3	55	Did not drill.						
No. 8 do	Capt. Cushing, Chatham.....	3	55	do						
	Staff	8	5							

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.		
								Number of Non-exercised Men, if any.	Ranges.					
								Battalion.	Company.					
								Figure of Merit.						
						Marching past, manual and firing exercises; battalion movements, troop-ing colors, very well done.	Yes.		200, 400 and 600.	18-30	Nov. 1.	Nov. 1.	Inspected by Major-General & Deputy Adjutant General.	
						Marching past, manual and firing exercises; battalion movements and skirmishing, very well done.	do		200, 400 and 500.	17-00	do 16.	do 16.	do	
						Company drill, fair. Manual and firing exercises.	Yes.			19-34	10-92	Oct. 10.	Oct. 10.	Inspected by Lt.-Col. Bacon, R.M.
										23-42	do 11.	do 11.		
										14-76	do 11.	do 11.		
										30-48	do 11.	do 11.		
										15-57	do 12.	do 12.		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.			Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.			Number of days' drill performed.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.				
21st Battalion.....		Lieut.-Col. Marchand, St. Johns								At Company Head Quarters.
No. 1 Company		Capt. Corneau, St. Johns.....	3	55	2	41	St. Johns.....	Sept. 13.	8	
No. 2 do		Capt. Mongeon, St. Johns.....	3	55	2	38	St. Marie.....	Oct. 16.	8	
No. 3 do		Capt. Beauvais, St. Johns.....	3	55	2	40	St. Johns.....	Sept. 13.	8	
No. 4 do		Capt. Roy, Henryville	3	55	Did not drill.					
		Staff	5	5						
50th Battalion ...		Lt.-Col. McEachern, C.M.G., Huntingdon ...								do
No. 1 Company		Capt. Henderson, Hinchinbrooke.	3	55	1	42	Hinchinbr'k	25th and 26th September.	8	
No. 2 do		Capt. McDonald, Huntingdon.....	3	55	2	42	Huntingdon		8	
No. 3 do		Capt. Gardner, Huntingdon.....	3	55	2	42	do ...		8	
No. 4 do		Capt. Cairns, Ormstown	3	55	2	42	Ormstown ...		8	
No. 5 do		Capt. Anderson, Athelstan.....	3	55	2	41	Athelstan.....		8	
No. 6 do		Capt. McLaren, Rockburn	3	55	2	42	Rockburn....		8	
No. 7 do		Capt. Feeny, DeWittville.....	3	55	2	40	DeWittville.		8	
No. 8 do		Capt. McKinnon, Dundee	3	55	2	37	Dundee		8	
		Staff.....	8	5						

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
								Figure of Merit.				
						Company drill. Company movements, fair.	Yes.	No returns.	Sept. 13.	Sept. 13.	Insp. by Lt.-Col. Fletcher, D.A.G.	
							Yes.	do	Oct. 16.	Oct. 16.	Insp. by Lt.-Col. Bacon, B.M.	
								do	Sept. 13.	Sept. 13.	Insp. by Lt.-Col. Fletcher, D.A.G.	
						Company drill, and manual and firing exercises, fair.	Yes.	200, 400 and 600 yards.	16-55			
									16-66	25th and 26th September.		
									12-73			
									12-16			
									27-59			
									16-46			
									17-02			
									22-52			
									7-30			
										25th and 26th September.	Inspected by Lt. Col. Bacon, B.M.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 5.—Continued.			Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.			Number of days' drill performed.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
51st Battalion		Lt.-Col. Rogers, Hemmingford									
No. 1 Company		Capt. Milne, Havelock	3	55							
No. 2 do		Capt. Scriver, Lacolle	3	55							
No. 3 do		Capt. Rowe, Franklin	3	55							
No. 4 do		Capt. McNaughton, Hemmingford	3	55							
No. 5 do		Capt. Elliott, Roxham	3	55							
No. 6 do		Capt. Hayes, Hemmingford	3	55							
No. 7 do		Capt. Livingstone, St. Jean Chrysostome	3	55							
No. 8 do		Capt. St. Marie, St. Remi	3	55							
		Staff	8	6							
52nd Battalion		Lt.-Col. Hall, Knowlton									
No. 1 Company		Lieut. Allan, Abercorn	3	55	2	42	At Company Headquarters.	Sept. 26.	8		
No. 2 do		Capt. Peters, Knowlton	3	55	2	42		do 26.	8		
No. 3 do		Capt. Flannery, Sutton	3	55	2	42		do 26.	8		
No. 4 do		Capt. Hall, East Farnham	3	55	2	42		do 26.	8		
No. 5 do		Capt. Perkins, Mansonville	3	55	2	42		do 27.	8		
No. 6 do		Capt. Mooney, Bolton	3	55							
		Staff	7	5							

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
		Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.				Miles.	Mode.
53rd Battalion	Lt.-Col. Ibbotson					At Company Headquarters.				
No. 1 Company	Sherbrooke Capt. Moorhouse, Sherbrooke	3	55	1	42		Aug. 8.	8		
No. 2 do	Capt. Armstrong Sherbrooke	3	55	2	39		do 8.	8		
No. 3 do	Capt. Ibbotson, Lennoxville.	3	55							
No. 4 do	Capt. Tremblay, Sherbrooke	3	55	1	42		do 8.	8		
No. 5 do	Lieut. Phelan, Magog	3	55	2	42		do 7.	8		
No. 6 do	Capt. Rolfe, Ascot Corners. Staff.	3 7	55 5	2	42		Sept. 30.	8		
54th Battalion	Lt.-Col. Lord Aylmer, Rich- mond					At Company Headquarters.				
No. 1 Company	Capt. McKenzie, Danville	3	55	2	42		Nov. 22.	8		
No. 2 do	Capt. Williamson Melbourne	3	55							
No. 3 do	Capt. Aylmer, Richmond	3	55							
No. 4 do	Capt. Boyd, Brompton	3	55							
No. 5 do	Capt. Mairs, S. Durham Staff.	3 7	55 5	2	32		Sept. 23.	8		

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS
							Number of Non-exercised Men, if any.	Figure of Merit.			
						Ranges.	Battalion.	Company.			
					Company drill, manual and rifle exercise, fair.	Yes.	200, 400, 600.	14 12			Inspected by Lt.-Col. Aylmer, B.M. No. 3 Company did not drill.
										
								9 08			
								11 30			
								26 19			
					do	Yes.	200, 400, 500.	13 81			Inspected by Lt.-Col. Aylmer, B.M. Nos. 2, 3 and 4 Companies did not drill.
										
										
								20 40			

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.				Number of days' drill performed.
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
58th Battalion		Lieut.-Col. Cook, Cookshire.....					At Company Head Quarters.				At Company Head Quarters.
No. 1 Company		Capt. Wyatt, Bury.....	3	55	2	42		Oct. 20.	8		
No. 2 do		Capt. Ross, Gould.....	3	55	2	42		do 18.	8		
No. 3 do		Capt. McIver, Winslow.....	3	55	2	42		do 18.	8		
No. 4 do		Capt. Weyland, Marbleton.....	3	55	3	42		do 17.	8		
No. 5 do		Capt. Ramage, Lake Megantic.	3	55	3	42		do 19.	8		
No. 6 do		Capt. Cook, Compton.....	3	55	2	42		Sept. 29.	8		
No. 7 do		Capt. Merry, Coaticook.....	3	55	2	35		Oct. 8.	8		
No. 8 do		Capt. Gilman, Stanstead.....	3	55							
No. 9 do		Capt. McAuley, Winslow.....	3	55	2	40		Oct. 18.	8		
No. 10 do		Capt. Bailey, Eaton.....	3	55	2	42		do 20.	8		
		Staff.....	8	5	3						
60th Battalion		Lieut.-Col. Rowe, Dunham.....					St. Armands.	September 1st.	8	In Camp.	
No. 1 Company		Capt. Sixby, Philipsburg.....	3	55							
No. 2 do		Capt. Jameson, Clarenceville...	3	55							
No. 3 do		Capt. Robinson, Dunham.....	3	55							
No. 4 do		Capt. Higgins, West Farnham.	3	55	19	218					
No. 5 do		Capt. Bockus, Stanbridge.....	3	55							
No. 6 do		Capt. Westover, Frelighsburg...	3	55							
		Staff.....	7	5							

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations, per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps, were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.		Target Practice.	Date of Inspection.	Date when drill was completed.	REMARKS.
								Ranges.	Figure of Merit.				
						Company drill, rifle and manual exercise. Fairly performed.	Yes.						
								Nos. 4 and 6 Companies—200 and 400 yards.					
										Oct. 20.	Oct. 20.	Inspected by Lt.-Col. Fletcher, D.A.G.	
										do 18.	do 18.		
										do 18.	do 18.		
										do 17.	do 17.		
										do 19.	do 19.		
										11-24	Sept. 29.	Sept. 29.	Inspected by Lt.-Col. Ayimer, B.M.
										Oct. 8.	Oct. 8.		
													Did not drill.
										Oct. 18.	Oct. 18.	Inspected by Lt.-Col. Fletcher, D.A.G.	
										do 20.	do 20.		
						Field movements, skirmishing and firing. Well done.	do				September 1st.		Inspected by Lt.-Col. Fletcher, D.A.G.
											September 2nd.		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 5.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
		Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.				Miles.	Mode.
79th Battalion...	Lieut.-Col. Miller, Granby					At Company Head Quarters.			At Company Head Quarters.	
No. 1 Company.	Capt. Seale, Granby	3	55	2	42		Sept. 23.	8		
No. 2 do	Capt. Maynes, Waterloo	3	55	2	42		do 22.	8		
No. 3 do	Capt. Codd, Waterloo	3	55	1	41		do 22.	8		
No. 4 do	Capt. Galbraith, South Roxton..	3	55	2	38		do 23.	8		
No. 5 do	Capt. Wood, Roxton Falls...	3	55	2	42		do 20.	8		
No. 6 do	Capt. Harkwell, North Ely.....	3	55							
No. 7 do	Capt. Brewa, Lawrenceville..	3	55	2	42		Sept. 21.	8		
No. 8 do	Capt. Brooks, Waterloo.....	3	55	1	34		do 22.	8		
	Staff.....	8	5							
Drummondville Company.....	Capt. Watts, Drummondville	3	55	2	42	do	Oct. 27.	8	do	
Eardley Comp'y....	Capt. Lawlor, Eardley	3	55							
Wakefield Company.....	Capt. Cates, Wakefield	3	55	2	38	At Company Head Quarters.	Sept. 19.	8	At Comp'y Head Quarters.	
Aylwin Comp'y....	Capt. Chamberlin, Kazubazua.	3	55	2	35	do	Sept. 20.	8	do	

Performed the Annual Drill for 1876-77.—Continued.

Time Required to concentrate the Battalion or Corps.	Cost of rations per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
							Number of Non-exercised Men, if any Ranges.	Figure of Merit.			
							Battalion.	Company.			
					Company drill, skirmishing, manual and rifle drill. Fairly performed.	Yes.			Sept. 23.	Sept. 23.	Inspected by Lt.-Col, Fletcher, D.A.G.
								do 22.	do 22.		
								do 23.	do 23.		
								do 20.	do 20.		
											Did not drill.
									Sept. 21.	Sept. 21.	Inspected by Lt.-Col. Fletcher, D.A.G.
								do 22.	do 22.		
					Company drill manual and rifle exercise. Fair.	do	2,4 & 600.	11-04			Inspected by Lt.-Col. Aylmer, B.M.
											Did not drill.
					Company drill manual and rifle exercise. Fair.	do	2,4 & 600.	20-23	Sept. 19.		Inspected by Lieut.-Col. Bacon, B.M.
					do	do	2,4 & 600	16-57	Sept. 20.		do

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 6.			Corps.	Corps.	Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers. N - C. O. and Men.	Officers. N - C. O. and Men.	Officers. N - C. O. and Men.						
64th Battalion	Lt.-Col. Prudhomme, H. Q., Beauharnois	18	252		Company Head Quarters.	30th June to 10th July.	8 days.	Company Head Quarters.		
No. 1 Company	Capt. Deslaurier, Beauharnois			2						
No. 2 do	Capt. Basinet, Beauharnois			2						
No. 3 do	Lieut. Cadieux, St. Etienne			1						
No. 4 do	Cpt. Prudhomme, St. Louis			2						
No. 5 do	Captain Davis, Valleyfield			2						
No. 6 do	Capt. Langevin, St. Timothée			2						
	Staff			7						
	Total			18	352					
66th Battalion	Lieut.-Col. Labranche, H. Q., Montreal	3	252		Montreal.	11th October to 15th November.	do	Head Quarters.		
No. 1 Company	Capt. Bourdon, Montreal			3						
No. 2 do	Montreal									
No. 3 do	Lieut. Corbeille, Montreal			1						
No. 4 do	Capt. Lymburner, Montreal			1						
No. 5 do	Captain Barthe, Montreal			1						
No. 6 do	Capt. Lapeinte, Montreal			3						
	Staff			3						
	Total			12	249					

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Figure of Merit.			
Battalion.	Company.											
Very good.	Very good.											
None.	None.											
Brass band, 20 men; very good.	Brass band, 20 musicians; first year.											
Very good.	Good.											
Manual and firing; marching in line; wheeling into columns; marching in column; opening and closing in different companies, &c., &c.	Proving and inspection of company and arms; manual and firing; wheeling of company; company drill on the move and skirmishing for No. 4 Company.											
do	Yes.											
Nearly all recruits.												
200, 400 and 600 yards.												
2:22	No return received as yet.											
2:37										July 11.		
7:27										do 11.		
9:31										do 8.		
1:20										do 8.		
16:07										do 9.		
										do 10.		
15th November.												

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 6.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.	Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N.-C. O. and Men.				Officers.	N.-C. O. and Men.
80th Battalion	Major De Foy, H. Q., Gentilly	5	252						
No. 1 Company	Capt. Giroux, Nicolet			1	42	Company Head Quarters.	In July.	8 days.	
No. 2 do	Capt. Landry, Becancour			2	39				
No. 3 do	Capt. Mousette, Ste. Gertrude			2	40				
No. 4 do	Capt. Pratte, St. Gregoire			1	40				
No. 5 do	Capt. Gaudet, Gentilly			2	40				
No. 6 do	Capt. Beaubien, Victoriaville			2	39				
	Staff			3					
	Total			13	240				
Joliette Battalion	Lieut.-Col. Sheppard, Joliette	15	210			Company Head-Quarters.	July.	e e e e e	
No. 1 Company	Capt. Sheppard, Joliette			2	42				
No. 2 do	Capt. Granger, St. Jacques			2	42				
No. 3 do	Capt. Guilbault, St. Melanie			2	39				
No. 4 do	Capt. Guilbault, Ste. Elizabeth			2	42				
No. 5 do	Lt. Blair, Rawdon			2	42				
	Staff			5					
	Total			15	207				

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
Good.		Very good.										
None.		None.										
		Brass band ; fifteen men ; very good.		Band, 15 men ; very good.								
		Fair.		Good.								
		Company drill for the whole, and skirmishing for No. 1 well done.		Company drill.								
		Yes.		Yes.								
								200, 400 and 600 yards.				
									8-00	July 13.		
									9-33	do 14.		
									5-25	do 16.		
									8-26	do 13		
									9-05	do 14.		
									5-28	do 15.		
									25-04	July 20		
									19-09	do 21		
									19-00	do 21		
									12-05	Aug. 30.		
									16-31	July 20		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
No. 6.—Continued.		Corps.		Corps.		Place,	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.—C. O. and Men.	Officers.						N.—C. O. and Men.
Three Rivers Battalion.....		Major Lambert, Three Rivers.....	15	210			Company Head-Quarters.			
No. 1 Company		Capt. de Grand-pré, Berthier.....			2	42			8	Company Head-Quarters.
No. 2 do		Capt. Pichette, Rivière du Loup.....			2	42			8	
No. 3 do		Capt. Laferrière, Berrhier.....			2	42			8	
No. 4 do		Capt. Henault, St. Gabriel.....			2	42			8	
No. 5 do		Capt. Sharp, Rawdon.....			2	41			8	
		Staff.....								
		Total.....			10	209				
St. Hyacinthe Battalion.....		Major Doherty, St. Hyacinthe.....	5	168			do			
No. 1 Company		Capt. Choput, St. Hyacinthe.....			2	42			8	do
No. 2 do		Capt. Morin, St. Pie.....			2	36			8	
No. 3 do		Capt. Sylvestre, St. Simon.....			2	37			8	
No. 4 do		Capt. Patenaude, Sorel.....								
		Staff.....								
		Total.....			6	115				

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7. Lieut.-Col. T. J. DUCHESNAY, D.A.G.M.			Establish- ment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.		Number of days' drill performed.	Miles.	Mode.
			Officers.	N - C. O. and Men.	Officers.	N - C. O. and Men.					
Quebec Field Bat- tery.....	1	Major Baby, Que- bec	5	74	3	74	Quebec.....	27th September.	12		4 Marching.
Gaspé Basin Bat- tery.....	1	Major J. lous....	2	42	1	30	Gaspé Basin	3rd November.	8		Head Quarters.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 7.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.				Number of days' drill performed.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.						
8th Battalion Rifles		Lt.-Col. Alleyn, Quebec			14	207	Quebec.	30th November.	8	Head Quarters.		
No. 1 Company		Capt. E. Scott, Quebec	2	42	2	42						8
No. 2 do		Major Morgan, Quebec			2	42						8
No. 3 do		Major Patterson, Quebec			1	42						8
No. 4 do		Major A. Stuart, Quebec			2	39						8
No. 5 do		Maj. C. Pentland, Quebec			2	42						8
		Staff	6		5							
9th Battalion Rifles		Lieut.-Col. Vohl, Quebec			14	206	do	9th November.	8	do		
No. 1 Company		Major Frenette, Quebec	2	42	1	41						8
No. 4 do		Capt. Garneau, Quebec			2	42						8
No. 5 do		Major Amyot, Quebec			2	42						8
No. 6 do		Major Evanturel, Quebec			2	42						8
No. 7 do		Major Gauvreau, Quebec			2	39						8
		Staff	9		5							

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
							Number of Non-exercised Men, if any.	Figure of Merit.			
							Ranges.	Battalion.			
								Company.			
Good.	Good.	Good.	Yes.	Good.					30th November.		
None.	None.	None.	Yes.	Good.	Manual and firing exercises by Senior Major; bayonet exercise by Adjutant; battalion movements by two Captains and the Officer commanding. The whole very well performed.	Yes.			30th November.		Inspected by the Major General commanding the Militia.
do	do	do	do	do	Manual and firing exercises by Senior Major; Battalion movements by the Officer commanding and the Senior Captain. The whole very well performed.	do			9th November.		Inspected by Lt. Col. Duchesnay, D. A. G., M. District No. 7.
									9th November.		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 7.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.					
17th Battalion, Light Infantry		Lt.-Col. Blanchet, Levis.....					Québec.			Head Quarters.	
No. 1 Company		Capt. Brunelle, St. Joseph.....	2	42	2	31		Aug. 3.	8		
No. 7 do		Major Fournier, St. Raphaël.....			2	42		July 18.	8		
No. 8 do		Capt. Morin, St. Lazare.....			2	40		do 18.	8		
County of Quebec Battalion		Major V. Laurin, Ancienne Lorette.....					Ancienne Lorette.			Head Quarters.	
No. 2 Company		Capt. N. Laurin, Ancienne Lorette.....	2	42	2	42		July 14th.	8 days.		
No. 3 do		Major Genest, St. Ambroise.....	2	42	2	42					

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
Good.	Good.	Good.	None.	Yes.	Good.	Manual and firing exercises; formation of fours; company drill and skirmishing; well performed, with exception of No. 1 Company, which is indifferent.	do	32	11-13	Aug. 3.	Aug. 3.	Inspected by Lt. Col. Lamontagne, Brigade Major, 7th Division.
None.	None.	None.	None.	Yes.	Good.	Formation of fours at the halt and on the march. Manual and firing exercises. Company drill and skirmishing well performed.	42	42	10-01	July 18.	July 18.	
Yes.	Yes.	Yes.	Yes.	Yes.	Good.	Formation of fours at the halt and on the march. Manual and firing exercises. Company drill and skirmishing well performed.	40	40	5-11	do 18.	do 18.	
Yes.	Yes.	Yes.	Yes.	Yes.	Good.	Formation of fours at the halt and on the march. Manual and firing exercises. Company drill and skirmishing well performed.	42	42	10-16	July 14	July 14	Inspected by Lt. Col. Duechesnay, D.A.G.,
None.	None.	None.	None.	Yes.	Good.	Formation of fours at the halt and on the march. Manual and firing exercises. Company drill and skirmishing well performed.	40	40	5-11	do 18.	do 18.	
Yes.	Yes.	Yes.	Yes.	Yes.	Good.	Formation of fours at the halt and on the march. Manual and firing exercises. Company drill and skirmishing well performed.	42	42	10-16	July 14	July 14	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.	
Battalion or Corps.	Companies.	Corps.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.	Place.			Date.	Number of days' drill performed.
Kamouraska Battalion.....		Lt.-Col. Taché.....								
No. 1 Company		Capt. Ouillet, Ste Anne.....	2	42	2	42	Ste. Anne.	July 28th.	8 days.	Head Quarters.
No. 2 do		Capt. Dupuy, Kamouraska.....	2	42	2	42	St. Denis.			
No. do		Capt. Fraser, St. Denis.....	2	42	1	35	Kamouraska			
Temiscouata Battalion.....		Lt.-Col. Hudon, Rivière-du-Loup.....								
No. 3 Company		Capt. Frère, Cacouna.....	2	42	2	41	Cacouna.	July 25		
No. 4 do		Capt. LeBel, St. Arsène.....	2	42	1	42	St. Arsène.	do 25	do	do
No. 5 do		Capt. Dumas, Green Island...	2	42	2	41	Green Island	do 26		

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any.	Ranges.			
								Battalion.	Company.			
								Figure of Merit.				
Good.		Good.					Yes.		3 34	July 28	July 28	Inspected by Lt.-Col. Duchesnay, D.A.G.
None.		None.					42	200, 400 and 600 yards.	9 24	do 28	do 28	
No		No		Formation of fours at the halt, and on the march; manual and firing exercises; company drill and skirmishing, very satisfactory.					.....	do 28	do 28	
do		Good.		Manual and firing exercises; formation of fours; company drill and skirmishing very satisfactory, except Capt. LeBel's.			do		14 16	July 25	July 25	Inspected by Lt. Col. Lamontagne, B.M.
							42	200, 400 and 600 yards.	9 18	do 25	do 25	
							42		7 15	do 26	do 26	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster and mode of transport.	
Battalion or Corps.	Companies.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
		Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
Rimouski Battalion.....		Lt.-Col. Martin, Rimouski.....									
No. 1 Company.....				2	42	2	42	Rimouski.	Aug. 11	8 days.	Head Quarters.
No. 4 do.....				2	42	1	35	Bic.	do 10		
Dorchester Battalion.....		Major L. Genest, St. Isidore.....									
No. 1 Company.....				2	42	2	38	Ste. Claire.	July 18	do	do
No. 3 do.....				2	42	1	40	St. Isidore.	do 23		
No. 4 do.....				2	42	2	40	St. Justin.	do 25		
23rd Battalion.....		Major Bernier, St. Marie.....									
No. 2 Company.....				2	42	1	42	Aylmer.....	Aug. 3.	8 days.	Head Quarters.
No. 4 do.....				2	42	2	41	do.....	do 3.		
No. 5 do.....				2	42	2	42	St. Marie.....	July 17.		

Performed the Annual Drill for 1876-77.—Continued.

Time Required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
								Number of Non-exercised Men, if any Ranges.	Figure of Merit.			
								Battalion.	Company.			
Good.	Good.	Good.	None.	No	Good.	Formation of fours at the halt and on the march; manual and firing exercises; company drill and skirmishing, tolerably well.	Yes.	42 36	14 6-25	Aug. 11 do 10	Aug. 11 do 10	Inspected by Lt.-Col. Duchesnay, D.A.G.
None.	None.	None.	None.	No	do	Formation of fours at the halt and on the march; manual and firing exercises; company drill. Skirmishing good.	do	38 41 40	3-13 6-20 12-26	July 18 do 23	Aug. 18 July 23	Inspected by Lt.-Col. Lamontagne, D.A.G. Inspected by Lt.-Col. Duchesnay, D.A.G.
No.	No.	No.	No.	No	Good.	Formation of fours on the halt & on the march, manual and firing exercises, company drill and skirmishing, satisfactorily performed.	Yes.	42 41 42	6-01 40-40 5-31	Aug. 3 do 3 July 17	Aug. 3 do 3 July 17	No. 2.—Inspected by Lt.-Col. Duchesnay, D.A.G. No. 4.—Inspected by Lt.-Col. Duchesnay, D.A.G. No. 5.—Inspected by Lt.-Col. Lamontagne, B.M.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N-C. O. and Men.	Officers.	N-C. O. and Men.					
55th Battalion		Lt.-Col. King, Inverness	2	42							
No. 1 Company		Capt. Miller, Kinnear's Mills			1	42	Kinnears	July 20.	8 days.	Head Quarters.	
No. 4 do		Capt. Thompson, Reid's Mills			2	42	Read's Mills.	do 19.			
No. 5 do		Capt. Blanchard, Somerset			2	40	Somerset	do 21.			
No. 6 do		Major Montgomery, St Sylvester			2	42	St. Sylvester	do 18.			
61st Battalion		Lt.-Col. Beaubien, St. Thomas									
No. 1 Company		Lieut. Fournier, St. Thomas	2	42	1	38	St. Thomas	Oct. 24.	do	do	
No. 2 do		Capt. Landry, St. Pierre			1	42	St. Pierre	do 31.			
No. 3 do		Capt. Desjardin, Cap St. Ignace			1	42	Cap St. Ignace	do 24.			

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Date of Inspection.	Date when drill was completed.	REMARKS
		Good.	None.	Yes.	Very good.	Formation of fours on the halt & on the march, manual and firing exercises, company drill and skirmishing, very well performed, with exception of Capt. Blanchard's, which is fair.	Yes.	38				17-11	July 20.	Inspected by Lt.-Col. Duchesnay, D.A.G.	
								38				11-27	do 19.		
								38				do 21.	do 21.		
												15-22	do 18.		
		No.				Formation of fours on the halt & on the march, manual and firing exercises, company drill and skirmishing, very well performed, with exception of Capt. Fournier's, which is tolerable.		42				13-34	Oct. 24.	do	
												do 31.	do 31.		
												do 24.	do 24.		

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 7.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
70th Battalion		Lt.-Col. Massicotte, St. Geneviève									
No. 1 Company		Capt. E. Trudel, St. Geneviève	2	42	2	42	St. G'n'viève	July 11.	8 days.	Head Quarters.	
No. 2 do		Capt. Cossette, St. Narcisse			2	42	St. Narcisse	do 13.			
No. 3 do		Capt. T. Trudel, St. Geneviève			2	42	St. G'n'viève	do 11.			
No. 4 do		Capt. J. Massicotte, St. Prosper			1	42	St. Prosper	do 12.			
No. 5 do		Capt. Tessier, Ste. Anne			2	42	St. Anne	do 12.			
Portneuf Battalion		Lt.-Col. Panet									
No. 2 Company		Capt. Frenette, St. Raymond	2	42	2	42	St. Raymond	July 9.	do	do	
No. 5 do		Capt. Bernard, Cap Santé			2	42	Cap Santé	do 21.			

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.	
							Number of Non-exercised Men, if any.	Figure of Merit.				
							Range.	Battalion.	Company.			
do	Good.											
do	None.											
No.	Yes.											
do	Good.											
		Formation of fours on the halt and on the march, manual and firing, company drill and skirmishing. The whole well performed, except Capt. Tessier's, which is tolerable.				Yes.	42	42	5-17	July 11.	July 11.	Inspected by Lt.-Col. Duchesnay, D.A G.
do		Formation of fours on the halt and on the march, manual and firing, company drill and skirmishing, well performed. Capt. Frenette's, very good.					42	42	12-28	do 13.	do 13.	
do							42	42		do 11.	do 11.	
do							42	42	9-13	do 12.	do 12.	
							200, 400 and 600.	200 and 400.				
									16-39	July 9.	July 9.	do
										do 21.	do 21.	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT <i>No. 7.—Continued.</i>			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Mode.	Distance the several Corps had to proceed to Muster, and mode of transport.
			Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
Charlevoix Battalion		Major Dufour, Bay St. Paul										
No. 1 Company		Capt. Gauthier, Bay St. Paul	2	42	2	42	Bay St. Paul	July 23.	8 days.	Head Quarters.		
No. 2 do		Capt. Blonin, Isle d'Orleans			1	42	d'Orleans	do 14.				
No. 4 do		Capt. Lemieux, Chicoutimi			1	40	Chicoutimi	do 29.				
Independent Co.		Capt. S. Martel, St. Raymond	2	42	2	42	St. Raymond	July 9.	do	do		

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations, per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps, were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
							Number of Non-exercised Men, if any.	Ranges.			
							Battalion.	Company.			
							Figure of Merit.				
do		Good.				Yes.					
do		None.									
do		No.									
do		Good.	Manual and firing exercises, formation of fours on the halt and on the march, company drill and skirmishing. The whole very well performed.								
do			Manual and firing exercises, formation of fours on the halt and on the march, company drill and skirmishing, well performed.								
							Nos. 1. 150, 200, 300; 2. 200, 400, 600; 4. 200, 400, 500.				
								10-17	July 23.	July 23.	Inspected by Lt.-Col.; Lamontagne, B.M.
								16-11	do 14.	do 14.	
								16-37	do 29.	do 29.	
								11-17	July 9.	July 7.	Inspected by Lt.-Col. Duchesnay, D.A.G.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 8. Lieut.-Col. G. J. MAUNSELL, D.A.G.M.			Establishment.	Actual Strength present at Inspection.	Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Place.	Date.	Number of days' drill performed.		
			Officers. N. - C. O. and Men.	Officers. N. - C. O. and Men.					
2nd Brigade Division.....		Lieut.-Col. MacShane, B. M., St. John	1	1					
8th Regiment Cavalry		Lt. - Col. Saunders, Apohaqui	21	291	14	162			
No. 1 Troop		Capt. Otty, Hampton	2	39	1	34		8	
No. 2 do		Capt. Foshay, Apohaqui	2	39	2	33		8	
No. 3 do		Capt. Pearson, English Settlement.....	2	39	2	32		8	
No. 4 do		Capt. Langstroth, Hammond River	2	39	2	32		8	
No. 5 do		Capt. Upham, Upham	2	39	.....	.....		8	
No. 6 do		Capt. Brittain, Springfield	2	39	2	31		8	
No. 7 do		Lieut. Scovil, Shediac	2	39	.....	.....		8	
		Staff and Band, Apohaqui.....	7	18	5	.....		
Field Battery.....		Bt.-Major Call, Newcastle	4	74	4	60			

Apohaqui.

8th July, 1876.

Bivouacked at Apohaqui; not in camp.

Average, 25 miles per Troop.

Marched, mounted.

Newcastle.

20th July, 1876.

In camp.

1 mile.

Marched.

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps. If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.		
							Number of Non-exercised Men, if any.	Ranges.					
							Battalion.	Company.					
							Figure of Merit.						
do	None issued by Government.	Good.	Yes; 14; good.	Good.	Cavalry field movements; well performed.	Yes.	None.	200 and 400 yards.	11-64	10-63	July 15.	July 15.	Inspected by Deputy Adjutant General. Nos. 5 and 7 Troops not drawn for drill.
do	Good.	None.							13-38	do 15.	do 15.		
do	None.								13-10	do 15.	do 15.		
do	Yes; 14; good.								13-38	do 15.	do 15.		
do									8-01	do 15.	do 15.		
do									.....	.....	.....
do	Shot and shell practice and artillery field movements; well performed.									do 15.	do 15.		Inspected by Inspector of Artillery and Deputy Adjutant General.
do	Artillery practice.									do 15.	do 15.		
do	Shot and shell practice.									do 15.	do 15.		
do	July 28.									Aug. 1.			

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8.—Continued.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp, or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Date.	Number of days' drill performed.	Whether in Camp, or otherwise.			
			Officers.	N.-C. O. and Men.				Officers.	N.-C. O. and Men.	
Field Battery.....		Capt. Dibblee, Woodstock.....	4	74	3	76	Woodstock.	4th July, 1876.	12	In camp. 1 mile. Marched.
N. B. Engineers.....		Capt. Perley, St. John.....	2	42						
B. G. Artillery.....		Lt. - Col. Foster, St. John.....	17	223	11	164	Saint John.	Different days.	8	Not in Camp. 1 mile. Marched.
tery.....		Capt. Kane, St. John.....	2	39	2	40				
No. 2 do		Capt. Ring, St. John.....	2	39	2	42				
No. 3 do		Bt.-Maj. Cunard, St. John.....	2	39						
No. 7 do		Bt.-Maj. Gillespie, Chatham.....	2	39	2	36				
No. 10 do		Capt. Armstrong, St. John.....	2	39	2	42				
		Staff and Band, St. John.....	7	28	3	4				

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Distance the several Corps had to proceed to Muster, and mode of transport.		
No. 8.—Continued.		Corps.		Corps.		Place.	Date.	Number of 'days' drill performed.				
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N. - C. O. and Men.	Officers.				N. - C. O. and Men.			Miles.	Mode.
62nd Battalion		Lt.-Col. Blaine, St. John	19	252	16	227	St. John.	Different days.	8 days.	Not in camp.	1 mile.	Marched.
No. 1 Company		Capt. Devlin, St. John	2	38	2	41						
No. 2 do		Capt. Sturdee, St. John	2	38	2	39						
No. 3 do		Capt. Farren, St. John	2	38	2	42						
No. 4 do		Capt. Hazen, St. John	2	38	2	32						
No. 5 do		Capt. McLean, St. John	2	38	1	36						
No. 6 do		Capt. Likely, St. John	2	38	2	33						
		Staff and Band, St. John	7	24	5	4						
67th Battalion		Lt.-Col. Upton, Woodstock	28	420	18	249	Company Head Quarters.	do	do	do	Nil.	
No. 1 do		Capt. Bourne, Woodstock	2	41	3	43						
No. 2 do		Capt. Adams, Centerville	2	40								
No. 3 do		Capt. Boyer, Victoria Co.	2	40	2	41						
No. 4 do		Capt. Hoyt, Richmond	2	40								
No. 5 do		Capt. Burpee, Waterville	2	40	2	40						
No. 6 do		Capt. Beckwith, Grand Falls	2	40	2	42						
No. 7 do		Capt. Baker, Little Falls	2	40	2	42						
No. 8 do		Bt.-Maj. Vince, Hartland	2	40								
No. 9 do		Capt. Hartley, Peel	2	40	3	41						
No. 10 do		Capt. Carvell, Wilmot	2	40								
		Staff and Band, Woodstock	8	19	4							

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.		
								Number of Non-exercised Men, if any.	Ranges.					
								Battalion.	Company.					
do	None issued by Government.	Good.	None.	Yes; 20.—Good.	Fair.	Company and battalion drill, manual and firing exercise and skirmishing, very good.	Yes.	None.	200, 400 and 600 yards.	16 34	19-83	Aug. 1.	Aug. 1.	Inspected by Deputy Adjutant General.
do	do	do	do	do	do	do	do	do	do	19-83	do	do	do	
do	do	do	do	do	do	do	do	do	do	18-76	do	do	do	
do	do	do	do	do	do	do	do	do	do	15-75	do	do	do	
do	do	do	do	do	do	do	do	do	do	19-09	do	do	do	
do	do	do	do	do	do	do	do	do	do	15-12	do	do	do	
do	do	do	do	Yes; 14.—Good.	Good.	No. 1 Co.—Company drill and firing exercise, very good. No. 3 Co.—Company drill, fair. No. 5 Co.—Company drill, manual and firing, indifferent. Nos. 6 & 7 Cos.—Company drill, manual and firing and skirmishing, very good. No. 9 Co.—Company drill, manual and firing and skirmishing, excellent.	do	do	do	14-26	18-50	July 6.	July 6.	Inspected by Brevet Major. Not drawn for drill. Inspected by D.A.G. & Bt-Maj. Not drawn for drill. Inspected by Brevet-Major. Inspected by Dep. Adj-Gen. do Not drawn for drill. Inspected by Dep. Adj-Gen. Not drawn for drill. Attached to companies.
do	do	do	do	do	do	do	do	do	do	14-56	July 6.	July 6.	do	
do	do	do	do	do	do	do	do	do	do	1-72	July 6.	July 6.	do	
do	do	do	do	do	do	do	do	do	do	18-24	do	do	do	
do	do	do	do	do	do	do	do	do	do	12-52	do	do	do	
do	do	do	do	do	do	do	do	do	do	10-05	July 7.	July 7.	do	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT. No. 8.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.				N.-C. O. and Men.		
71st Battalion		Lt.-Col. Marsh, Fredericton	17	210	16	168	Company Head Quarters.	Different days.	8 days.	Not in camp.	Nil.
No. 2 Company		Bt.-Maj. Staples, St. Marys	2	37	2	37					
No. 3 do		Capt. Christy, Keswick	2	37	2	37					
No. 4 do		Bt.-Major Wilkinson, Stanley	2	27	2	37					
No. 5 do		Capt. Cropley, Fredericton	2	38	3	38					
No. 6 do		Bt.-Major Alexander, Blessville	2	37							
		Staff and Band, Fredericton	7	24	7	19					
73rd Battalion		Major Sheriff, Chatham	17	210	12	126	Company Head Quarters.	Different days.	8	Not in camp.	Nil.
No. 1 Company		Capt. Hutchinson, Buctouche	2	38	1	39					
No. 2 do		Capt. Fenton, Chatham	2	37	2	37					
No. 3 do		Capt. Blake, Black Brook	2	37							
No. 4 do		Capt. Templeton, Black River	2	37							
No. 5 do		Capt. Cameron, Bay de Vin	2	37	3	41					
		Staff and Band, Chatham	7	24	3						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 8.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.	
		Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
74th Battalion	Lieut.-Col. Beer, Sussex			15	139	Company Head Quarters.	Different days.	8	Not in Camp.	Nil.	Nil.
No. 1 Company	Capt. Wetmore, Clifton	2	42	2	33						
No. 2 do	Capt. Alward, Petitcodiac			2	33						
No. 3 do	Capt. Arnold, Sussex										
No. 4 do	Capt. Murray, Murray Road			2	40						
No. 5 do	Capt. Baird, Sackville			2	33						
No. 6 do	Capt. Harper, Bay Verte Staff and Band, Sussex	7	13	7	With Companies						
Independent Company	Capt. Lloyd, Deer Island	2	39								
Independent Company	Capt. Barbarie, Dalhousie	2	39	2	39	Company Head Quarters.	Different days.	8	Not in Camp.	Nil.	Nil.
Independent Company	Lieut. Stewart, St. Stephen	2	39	2	37						
Independent Company	Bt-Major McGee, St. George	2	39	2	37	Company Head Quarters.	Different days.	8	Not in Camp.	Nil.	Nil.

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.	
								Number of Non-exercised Men, if any.	Figure of Merit.				
								Ranges.	Battalion.	Company.			
Nil.	None issued.	Nil.	Nil	None issued by Government.	Good.	None.	Yes.	200	17-10	13-00	July 18.	July 18.	Inspected by Deputy Adjutant General. Nos. 3 and 6 Companies not drawn for drill.
Good.	Good.	Good.	Good.	Good.	Good.	None.	Yes.	400	.....	16-29	do 20.	do 20.
None.	None.	None.	None.	None.	None.	None.	Yes.	600	24-17	July 21.	July 21.	The members of this Company are fishermen. Winter months most convenient season for drill. Drill not completed.
Company drill, manual and firing exercise; very good.	Manual, firing and Company drill; fair.	Manual, firing and Company drill; fair.	Yes.	No. 1—Company drill, manual, firing and skirmishing; very good. No. 2—Fair; recruit Company. No. 4—Company drill, manual and firing exercise and skirmishing; very good. No. 5—Company drill, manual and firing exercise; good.	Good.	None.	Yes.	2, 4 & 600.	.....	14-94	do 20.	do 20.
Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.	2, 4, 5 & 600.	22-50	Inspected by Deputy Adjutant General.
None.	None.	None.	None.	None.	None.	None.	None.	2, 4 & 600.	.....	.....	.....	.....
2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	2, 4 & 600.	Inspected by Deputy Adjutant General.
.....	
15-60	June 17.	June 17.	June 17.	June 17.	June 17.	June 17.	June 17.	June 17.	Not drilled before 1st December. Not completed.
.....	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 9. Colonel J. W. LAURIE, D.A.G.M.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.			Number of days' drill performed.
		Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.				
Halifax Field Battery	Major Graham, Halifax	5	100	5	69	Halifax.....	Nov. 11	12	
1st Brigade Garrison Artillery	Lt.-Col. Mitchell, Halifax	25	330	11	116				
No. 3 Battery	Captain Curren, Halifax			2	39	do	3rd November.	8	
No. 4 do	Captain Oland, Halifax			2	23			8	
No. 5 do	Cpt. Wainwright, Halifax			2	28			8	
No. 6 do	Capt. Oxley, Halifax			2	26			8	
2nd Brigade Garrison Artillery	Lt.-Col. McPherson, Halifax	25	330	9	104				
No. 2 Battery	Capt. Stairs, Halifax			2	33	do	do	8	
No. 3 do	Lieut. Stewart, Halifax			2	38			8	
No. 4 do	Capt. Purcell, Halifax			2	33			8	

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.	
								Number of Non-exercised Men, if any.	Ranges.				
								Battalion.	Company.				
Good.		Good.	Good.	No.	General state of clothing, good; arms require general repairs.	Field Battery drill and ordinary inspection movements; guns not horsed at inspection.	Stated to be so.			17-00	Nov. 13	Nov. 13	
None.		None.	None.				None.						
do		Good, drum and bugle corps; 13 members.	do				do	200, 400 and 600 yards.	21-50				
Drilled with 1st Brigade.		Battalion drill well performed; manual and firing exercises; gun drill in detail, satisfactory.					do	200, 400 and 600 yards.	23-02	Nov. 3	Nov. 3	Nov. 3	
do		do	do				do	200, 400 and 600 yards.	21-99	do 3	do 3	do 3	
do		do	do				do	200, 400 and 600 yards.	22-45	do 3	do 3	do 3	
do		do	do				do	200, 400 and 600 yards.	18-84	do 3	do 3	do 3	
do		do	do				do	200, 400 and 600 yards.	11-32				
do		do	do				do	200, 400 and 600 yards.	6-74	Nov. 3	Nov. 3	Nov. 3	
do		do	do				do	200, 400 and 600 yards.	15-75	do 3	do 3	do 3	
do		do	do				do	200, 400 and 600 yards.	11-71	do 3	do 3	do 3	

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 9.—Continued.		Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster and mode of transport.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
		Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
63rd Battalion...	Lt.-Col. Pallister, Halifax.....	26	330	13	200	Halifax.....	7th November.	8		
No. 1 Company...	Lieut. McInnis, Halifax.....			2	38					
No. 2 do	Capt. Fultz, Halifax.....			2	40					
No. 3 do	Capt. Bond, Halifax.....			2	38					
No. 4 do	Capt. McKerron, Halifax.....			2	42					
No. 5 do	Capt. Walsh, Halifax.....			2	42					
66th Battalion...	Lt.-Col. Bremner, Halifax.....	32	440	11	168	do	do	8		
No. 2 Company...	Capt. Hart, Halifax.....			2	42					
No. 4 do	Capt. Putner, Halifax.....			2	42					
No. 7 do	Capt. Humphrey, Halifax.....			2	42					
No. 8 do	Capt. Reeves, Halifax.....			2	42					
78th Battalion...	Lt.-Col. Campbell, Truro.....	29	385	13	199	Truro.	20th October.	8		
No. 1 Company...	Capt. Lawrence, Truro.....			2	42					
No. 2 do	Capt. Rayne, Onslow.....			2	42					
No. 4 do	Capt. Nelson, Sherborne.....			2	39					
No. 5 do	Capt. Burgess, Windsor.....			2	39					
No. 6 do	Capt. Sutherland, North Thorne.....			2	37					

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT.		Establishment.	Actual Strength present at Inspection.	Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
No. 9.—Continued.				Corps.	Corps.	Place.				Date.	Number of days' drill performed.
Battalion or Corps.	Companies. Commanding Officer and Head Quarters.	Officers. N.-O. O. and Men.	Officers. N.-C. O. and Men.	Officers. N.-C. O. and Men.	Place.		Date.	Number of days' drill performed.	Whether in Camp or otherwise.			Miles.
Cumberland Provisional Battalion	Major Harrison, Amherst	20	275	8	110	Spring Hill.	15th July.		
No. 2 Company	Capt. Black, Riv. Philip			2	39				
No. 3 do	Capt. Harrison, Maccan			2	32				
No. 4 do	Capt. Mills, Mount Maccan			2	39				
Pictou Battery, Garrison Artillery	Capt. Gordon, Pictou	3	55	2	35	Pictou	20th November.	8	
Lunenburg Battery of Garrison Artillery	Lieut. G. Godley, Lunenburg	3	55	2	39	Lunenburg	Oct. 26.	8 days.	
All Corps Drilled at Local Head Quarters.									

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 9.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.						
Mahone Bay Battery of Garrison Artillery		Capt. James, Mahone Bay.....	3	55	2	39	Lunenburg.	Oct. 26.	8 days.		All Corps Drilled at Local Head Quarters.	
68th Battalion.....		Lieut.-Col. Chipman, Kentville	35	495	15	250	Kentville.	19th September.	do	do		
No. 1 Company		Capt. Dodge, Kentville.....			2	42						
No. 2 do		Capt. Beckwith, Canard.....			2	42						
No. 3 do		Capt. Redden, Kentville.....			2	42						
No. 4 do		Capt. Steadman, Bill Town.....			2	41						
No. 6 do		Capt. Borden, Canning.....			2	41						
No. 9 do		Capt. Ross, Buckley's Corners.....			2	42						
69th Battalion.....		Lieut.-Col. Starratt, Paradise..	35	495	15	249	Pardie.	7th September.	do	do		
No. 1 Company		Capt. Marshall, Clarence.....			2	42						
No. 3 do		Capt. Wade, Granville.....			2	41						
No. 4 do		Capt. Charlton, Port William.....			2	41						
No. 5 do		Capt. Whittman, Round Hill.....			2	42						
No. 6 do		Capt. Buckler, Dalhousie.....			2	42						
		Capt. Harris, Clementsport.....			2	41						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 9.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise. Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.	Number of days' drill performed.	
			Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.				
72nd Battalion.....		Lieut.-Col. Parker, Wilmot.....	25	330	10	153	Wilmot.	30th October.	8 days.	All Corps Drilled at Local Head Quarters.
No. 2 Company ...		Capt. Baker, Wilmot.....			2	39				
No. 3 do		Capt. Roach, Port William.....			2	39				
No. 4 do		Capt. Phinney, Farmington.....			2	36				
No. 5 do		Capt. Taylor, Middleton.....			2	39				
75th Battalion.....		Major Rudolf, Lunenburg	34	330	10	151	Lunenburg.	20th October.	do	do
No. 1 Company ...		Capt. King, Lunenburg			2	38				
No. 2 do		Capt. Ourl, Lunenburg.....			2	38				
No. 3 do		Capt. Ross, Lunenburg.....			2	36				
No. 4 do		Capt. Ham, Mahone Bay.....			2	39				
Victoria Provisional Battalion.....		Major W. Bingham, Baddeck.....	5	275	12	198	Baddeck	4th July.	do	do
No. 1 Company ...		Capt. W. Cain, Baddeck.....	3	55	2	40				
No. 2 do		Capt. C. McRae, Middle River.....	3	55	2	42				
No. 3 do		Capt. J. McNeil, Grand Narrows.....	3	55	2	42				
No. 4 do		Capt. D. F. McRae, Baddeck.....	3	55	2	35				
No. 5 do		Capt. C. W. Hill, Sydney.....	3	55	2	39		Sydney.....	July 11.	

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bona fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Target Practice.		Date of Inspection.	Date when drill was completed.	REMARKS.
									Ranges.	Figure of Merit.			
Good.	None.	Good.	None.	No	General state of clothing, good; arms require general repairs.	Battalion drill, marched past, manual and firing exercise; skirmishing fairly performed.	Stated to be so.	None.	22-71	33-89	30th September.		
do	do	do	do	do	Battalion and Company drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>17-11</td> <td>14-19</td> <td>26th October.</td> <td>30th September.</td> </td>	do	do	200, 400 and 600 yards. <td>17-11</td> <td>14-19</td> <td>26th October.</td> <td>30th September.</td>	17-11	14-19	26th October.	30th September.	
Good.	do	do	do	do	Battalion drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>10-76</td> <td>19-78</td> <td>26th October.</td> <td>30th September.</td> </td>	do	do	200, 400 and 600 yards. <td>10-76</td> <td>19-78</td> <td>26th October.</td> <td>30th September.</td>	10-76	19-78	26th October.	30th September.	
do	do	do	do	do	Battalion drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>11-07</td> <td>17-54</td> <td>4th July.</td> <td></td> </td>	do	do	200, 400 and 600 yards. <td>11-07</td> <td>17-54</td> <td>4th July.</td> <td></td>	11-07	17-54	4th July.		
do	do	do	do	do	Battalion drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>7-97</td> <td>18-32</td> <td>4th July.</td> <td></td> </td>	do	do	200, 400 and 600 yards. <td>7-97</td> <td>18-32</td> <td>4th July.</td> <td></td>	7-97	18-32	4th July.		
do	do	do	do	do	Battalion drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>8-54</td> <td></td> <td></td> <td></td> </td>	do	do	200, 400 and 600 yards. <td>8-54</td> <td></td> <td></td> <td></td>	8-54				
do	do	do	do	do	Battalion drill, skirmishing fairly performed. <td>do</td> <td>do</td> <td>200, 400 and 600 yards. <td>13-84</td> <td></td> <td></td> <td></td> </td>	do	do	200, 400 and 600 yards. <td>13-84</td> <td></td> <td></td> <td></td>	13-84				

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 10. Lieut.-Col. W. OSBORNE SMITH, C.M.G., D.A.G.M.			Establishment.	Actual Strength present at Inspection.	Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.	Corps.	Place.	Date.	Number of days' drill performed.				
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.			Miles.	Mode.	
Winnipeg Field Battery of Artillery.....		Major the Hon. W. N. Kennedy, Winnipeg.....	5	74	5	61	Little Stony Mountain.	4th to 16th September, 1876.	12	In Camp.	6 Marched.

performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were <i>bonâ fide</i> enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Figure of Merit.	Target Practice.
12 hours.	40 cents.	Very good.	None.	Newly formed Band (11); fair.	Good.	Marching post, general manoeuvres and movements of a Field Battery; shell practice, also standing gun drill.	Yes.	13	.....	.....	.....	.....	.....
14th September, 1876.													
16th September.													The target practice returns, Major Kennedy informs me, are in care of Lieut. Young, who is now at the Kingston School of Gunnery, and they cannot be furnished in time to accompany the report.
													REMARKS.

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 11. Lieut.-Col. C. F. HOUGHTON, D.A.G.M.		Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles.	Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Places.	Date.	Number of days' drill performed.			
			Officers.	N.-C. O. and Men.				Officers.	N.-C. O. and Men.	
Victoria Rifles... No. 1 Company	2	Bt.-Major Roscoe, Victoria	2	40	2	19	Victoria	Dec. 2...	At Company Head Quarters.	
No. 2 do		Capt. Vinter, Victoria	2	40	1	18	do	do 2...		
New Westminster Rifles		Capt. Burr, New Westminster	3	40	3	20	New Westminster.	Dec. 14..	do	
Seymour Artillery (Half Battery)		Lieut. Scott, New Westminster	2	30	1	12	do	Dec. 15..	At Battery Head Quarters.	
Nanaimo Rifles		Capt. Bryden, Nanaimo	3	40						

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 12. Col. Hon. JOHN H. GRAY, C.M.G., D.A.G.M.			Establishment.	Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster, and mode of transport.
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Corps.		Corps.		Place.	Date.			Number of days' drill performed.
			Officers.	N. - C. O. and Men.	Officers.	N. - C. O. and Men.				
Georgetown Garrison Artillery		Capt. Owen, Georgetown ...	2	40	2	28	Georgetown.	July 18.	8	At Company Head Quarters.
Summerside Garrison Artillery		Capt. Price, Summerside ...	2	40	2	31	Summerside.	July 12.	8	do
Charlottetown Garrison Artillery, No. 1 Battery		Major Pollard, Charlottetown.	3	40	3	33	Charlottetown.	July 6.	8	do
Charlottetown Garrison Artillery, No. 2 Battery		Major Morris, Charlottetown.	3	40	2	32	do	July 5.	8	do

INSPECTION REPORT OF CORPS which have

MILITARY DISTRICT No. 12.—Continued.			Establishment.		Actual Strength present at Inspection.		Muster.			Whether in Camp or otherwise.	Miles. Distance the several Corps had to proceed to Muster and mode of transport.
			Corps.		Corps.		Place.	Date.	Number of days' drill performed.		
Battalion or Corps.	Companies.	Commanding Officer and Head Quarters.	Officers.	N.-C. O. and Men.	Officers.	N.-C. O. and Men.					
Queen's County Battalion		Lieut.-Col. Beer, Charlottetown.					Charlottetown.	June 24.	8	At Company Head Quarters.	
No. 2 Company		Capt. McMillan, Wheatly River.	2	40							
No. 3 do		Capt. Rogerson, Crapaud	2	40							
No. — do		Capt. Longworth, Charlottetown.	2	40	2	32					
King's County Provisional Battalion		Maj. Macdonald, Georgetown					Cardigan.	July 10.	8	do	
No. 2 Company		Capt. Scrimgeour, Cardigan	3	40	2	34					
Prince County Provisional Battalion		Lt.-Col. Hunter-Duvar, Summerside					Alberton.	July 4.	8	do	
No. 1 Company		Capt. Montgomery, Alberton	2	40	1	33					

Performed the Annual Drill for 1876-77.—Continued.

Time required to concentrate the Battalion or Corps.	Cost of rations per head, per diem, at encampment.	General Conduct of Corps.	If any, and what casualties.	Whether in possession of Band. Number of Musicians, and proficiency.	General State of Clothing, Arms and Accoutrements.	Nature of Movements at Inspection, and how performed.	Whether the men of the several Corps were bona fide enrolled members thereof, according to the Militia Act.	Number of Non-exercised Men, if any.	Ranges.	Battalion.	Company.	Date of Inspection.	Date when drill was completed.	REMARKS.
3 1/2 hours.	do	do	do	do	do	Company drill, manual and platoon, skirmishing with blank cartridge, very fairly performed.	do	do	200 to 300 yards.		3 1/2	Aug. 31.	July 13.	
4 hours.	do	do	do	do	do	Company drill, very indifferent.	do	do	do		14	Sept. 4.	July 18.	First time of drilling.
6 hours.	do	do	do	do	do	Company drill, manual and platoon, very good.	Yes.	do	200 to 600 yards.		32	Oct. 30.	Oct. 30.	Did not drill. do
	Good.	None.	None.	New.										

APPENDIX No. 3.

REPORTS ON THE ARTILLERY, &c.

REPORT OF THE INSPECTOR OF ARTILLERY AND WARLIKE STORES.

CITADEL, QUEBEC, 31st December, 1876.

To the Adjutant General of Militia,
Canada.

SIR,—I have the honour to report that during the past year I inspected the Artillery Forts and armament of the whole Dominion, except the Provinces of Manitoba and British Columbia, and those batteries not training at the time of my inspection, which were subsequently (in Ontario) inspected by Lieut.-Colonel Irwin, Inspector of Artillery, whose report I enclose. Those personally inspected by me are as follows:—

Ontario.

Hamilton Field Battery
 Durham do
 Gananoque do
 Toronto do
 Cobourg Garrison Battery
 St. Catherines do

Quebec.

Montreal Field Battery
 Shefford do
 Quebec do

New Brunswick.

Newcastle Field Battery
 St. John Garrison Batteries, 1, 2, 3 and 10.
 Chatham Garrison Battery.

Nova Scotia.

Halifax Field Battery.
 1st and 2nd Brigades Halifax Garrison Artillery
 Digby Garrison Battery.

Prince Edward Island.

Charlottetown, Nos. 1 and 2 Batteries Garrison Artillery.

The Summerside and Georgetown Batteries having no guns, dilled as infantry. I did not inspect them.

Corps reported as not having drilled this year:—

Quebec.

St. Johns Battery Garrison Artillery.
 Montreal Brigade Garrison Artillery.
 Gros-e Isle Battery.

New Brunswick.

Nos. 4, 5, 6, 7, 8 and 9 Batteries Garrison Artillery.

Nova Scotia.

Pictou Battery Garrison Artillery.
 Digby do
 Mahon Bay do
 Lunenburg do

PARADE State of Batteries Inspected by Lieutenant-Colonel T. B. Strange,
R. A., Inspector of Artillery.

Name of Battery.	Field Officers.	Captains.	Lieutenants.	Staff Sergeants.	Sergants.	Corporals.	Bombardiers.	Gunners.	Trumpeters.	Total.	Horses.	First-Class Certificate.	Second-Class Certificate.	Third-Class Certificate.	Surgeon.	Veterinary Surgeon.	Remarks.
ONTARIO.																	
Hamilton Field Battery.....	1	1	3	4	4	4	59	1	77	28	4	2	1	1			*Not returned.
Toronto Field Battery.....	1	2	2	...	5	4	58	1	74	28	4	2	1	1			
Durham Field Battery.....	1	3	4	4	5	4	57	...	78	28	3	2	1	1			
Gananoque Field Battery.....	1	3	2	4	3	4	38	1	56	28	4	1	4	1			
Cobourg Battery Garrison Artillery	1	1	...	3	3	3	35	1	47	.....	.....	1	2	.....		
QUEBEC.																	
Shefford Field Battery.....	1	3	4	4	4	4	34	1	55	28	1	9	1	1			Officers do not belong to battery
Montreal Field Battery.....	1	1	2	4	4	2	39	1	54	28	2	8	.....	1		
Quebec Field Battery.....	1	1	1	4	4	4	59	1	75	27	2	3	.....	1		
Gaspé Battery, Garrison Artillery	1	...	2	2	2	2	24	...	31	.....	1	2	.....	.....	
NEW BRUNSWICK.																	
Newcastle Field Battery.....	1	2	1	4	4	4	45	1	62	28	1			Col. Foster, commanding brigade, was present, also Major Underhill, Adjt.
No. 1 Battery, St. John Garrison Artillery.....	1	2	1	2	3	2	30	...	41	.....	.....	.....	.....	.....
No. 2 do do.....	1	1	...	4	3	2	32	1	44	.....	.....	.....	.....	.....
No. 3 do do.....	1	...	1	...	...	...	11	...	13	.....	.....	.....	.....	.....
No. 10 do do.....	1	2	...	2	2	1	21	1	30	.....	.....	.....	.....	.....
No. 7 Battery, Chatham.....	1	...	4	4	4	4	29	1	43	.....	.....	2	.....	.....	
NOVA SCOTIA.																	
Halifax Field Battery.....	...	3	2	6	6	6	59	2	85	1	1			No parade states sent in.
Halifax Brigades, 1st and 2nd, Garrison Artillery.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PRINCE EDWARD ISLAND.																	
No. 1 Battery, Charlottetown, Garrison Artillery.....	1	1	...	1	2	...	14	...	19			Drilled as Infantry.
No. 2 Battery, Charlottetown, Garrison Artillery.....	1	2	...	3	3	...	21	...	30	.....	.....	1	.....	.....	
The Georgetown and Summerside Batteries.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

T B. STRANGE, Lieut.-Col. R. A.,
Inspector of Artillery.

PROVINCE OF ONTARIO.

Hamilton Field Battery.

I inspected the Hamilton Field Battery, commanded by Captain Smith, armed with 9-pr. muzzle-loading-rifed guns. The old smooth-bore ammunition wagons had not been properly fitted to carry rifled projectiles (this has since been ordered to be rectified) nor had the necessary small stores been supplied. Officers' saddlery and saddles for the officers' horses are also required, as well as spurs for the drivers. The want of the latter was probably the reason why the horses could not be kept up to the collar in going up a steep ascent, and the gun ran back, dragging the horses with it.

The absence of injury to men or horses was, in a great measure, due to the ready and quiet manner in which the orders of Captain Smith were given and obeyed. The gun practice, carried out at the Dundas Marsh, was very good. The Battery having affiliated with the Dominion Artillery Association, the following prizes were gained:—

- 1st. Gunner Duggan.
- 2nd. Sergeant Hottram.
- 3rd. Bombardier Stevenson.
- 4th. Corporal Barber.
- 5th. Sergeant Peebles.

Prizes were also awarded to Drivers George Bridgewood and James Wilson.

The drill of the battery was steady and satisfactory; the carriages and harness were not clean, but the weather in camp had been very bad, and the gun practice and inspection being all carried out in a single day, the men had but little time for cleaning up.

I noticed that several of the nuts of the elevating screw boxes broke off with the force of the recoil. Spare bolts and nuts should be supplied to all Field Batteries with iron carriages. Capt. Smith is evidently a good practical officer, but the efficiency of this, as of other batteries, would increase in proportion to the numbers sent through a Gunnery School.

Durham Field Battery.

Commanded by Captain Graham.

The gun drill was good, an instructor from "A" Battery having been attached; but I cannot speak favourably of anything else in connection with this Battery. Judging from the uncared for condition of the present equipment, I cannot recommend that rifled guns be issued to this battery, until Lieut.-Colonel Irwin thinks fit to recommend it.

I was not able to superintend the practice, as a great part of the ammunition had been fired off before my arrival, although I had intimated my desire to superintend the practice.

Lieut.-Colonel Irwin reported the same disregard to his wishes last year.

Gananoque Field Battery.

Commanded by Major Mackenzie.

The drill of the battery was steady and satisfactory, harness well fitted and good order, though the ironwork was not burnished.

The officer commanding this battery, is, in my opinion, capable and energetic. He holds a first-class certificate from the Gunnery School, Kingston, and will not spare himself or his purse in keeping efficient the 9 pounder muzzle-loading rifle equipment I have recommended to be issued to him.

I find that no funnels for filling shell, screw-drivers or gimlet borers have been issued with the small stores to this battery. Accidents may happen from spilling loose powder when funnels are not supplied.

Fogs and bad weather impeded the practice. The following were awarded prizes by the Dominion Artillery Association :—

- 1st. Lieut. Mitchell.
- 2nd. Sergeant Thompson.
- 3rd. Bombardier Lloyd.
- 4th. Bombardier Clixby.
- 5th. Captain Hollard.

Drivers.

- Driver A. Jackson.
 “ Richard Dowsley.

Toronto Field Battery.

Toronto Field Battery, commanded by Major Grey, is one of which he has every reason to be proud.

At the risk of being thought invidious, I consider it only justice to state that, as a whole, the turn out and drill of this battery appeared to me unsurpassed by that of any Militia Field Battery I have had the honor of inspecting. The gun practice was not as good as I expected, probably from the miscalculation of range.

The following Dominion Artillery Association prizes were gained :—

1. Sergeant McBrien.
2. Gunner Linal.
3. do Haltorf.
4. Major Grey.
5. Sergeant Dale.

Drivers.

1. Driver Harrison.
2. do Spence.
3. do Robt. T. Harrison.
4. do Lenwick.

Officers' horse appointments are required by this battery. They deserve credit for their efficient band, which, no doubt, contributes to the *esprit-de-corps*.

Cobourg Garrison Battery.

Commanded by Captain Dumble.

The gun drill of this battery was very good, as also the gun practice, though carried on from an indifferent platform. The following gained Dominion Artillery Association prizes :—

1. Bombardier Pratt.
2. Corporal Parsons.
3. Sergeant Edgcumbe.

Captain Dumble reports favorably of the Assistant Gunnery Instructor sent him from the Kingston Gunnery School. It would be, in my opinion, desirable to erect an earthwork battery on the west side of the Harbor at Weller's Point, where there is a very favorable site. Captain Dumble being professionally an Engineer, he could, I have no doubt, carry out the construction, which would be good practice as a drill for his men, and need be but little expense beyond platforms and gabions, if permission were given to use the site until required for other purposes.

St. Catherines Battery Garrison Artillery.

Commanded by Lieut. See. This battery was not drilling at the time of my visit, but I inspected the guns and equipments, which I found in good order. There are two 18-pounder guns of position for which harness is required; they are in a strategically important locality.

There is no magazine, but one has been estimated for at a cost of \$125.

Lieut.-Colonel Irwin will report fully on this battery.

PROVINCE OF QUEBEC.

Montreal Field Battery.

Commanded by Lieut.-Col. Stevenson.

The men were, as usual, clean, soldierlike and steady at drill.

The harness and equipment in good order.

The guns were splendidly horsed, but the allowance of blank ammunition is not enough to steady them, and the Nos. 1 had some little difficulty in mounting quickly.

Considering their gunnery knowledge, which is above average, (a great many non-commissioned officers and men having been through the Branch Gunnery School at Montreal) I was disappointed with the result of the gun practice; but it is, I believe, the first time the men have had to judge the effect of their own fire, and correct their aim accordingly. This rule of the Dominion Artillery Association does not give as showy results as the old plan of signalling the effect of fire from the range party; but as the enemy is not usually found so obliging as to perform this service, it is necessary to accustom Artillery to the practice of judging for themselves.

The want of subaltern officers is a serious drawback to this battery, which I have had to notice for some years past. Assistant Gunnery Instructor Lyndon was sent from the Quebec Gunnery School to assist in the training. The following Dominion Artillery Association prizes were gained:—

1. Sergeant Jno. Wilson.
2. Gunner J. Smith.
3. do A. Hastings.
4. Sergeant Hugh McIntosh.
5. Corporal Jno. Marsh.

Drivers.

1. Driver Robert Smith.
2. do John Mills.
3. do David Smith.
4. do Oliver Clement.

The deficiencies in the equipment of this battery were submitted with the proceedings of a Board last year, to which may be added a trumpet which has been 21 years in use, and requires to be replaced. A trumpeter was sent from the Quebec Gunnery School.

Shefford Field Battery.

Commanded by Major Amyrauld.

This battery drilled well, but there were a number of recruits whose slovenly carriage detracted from the appearance of the battery, which is really very efficient, having a great number of non-commissioned officers who have qualified at the Quebec Gunnery School.

Their smooth-bore gun practice was excellent; the highest smooth-bore score in the Dominion, which gains for them the medal presented to the Dominion Artillery Association by His Excellency the Governor General, for smooth-bore field gun practice. The scores were as follows:—

1. Bombardier Curtis Savage, Winner of His Excellency's Medal.
2. do H. Strange.
3. Gunner B. Neil.
4. Sergeant W. Neil.
5. do W. Kay.

Drivers.

- Driver Gray.
do Johnston.
do Booth.

Assistant Gunnery Instructor Lyndon, Quebec Gunnery School, also assisted in training this battery. The deficiencies in the equipment of this battery were submitted in the proceedings of a Board, sent to Head Quarters on the 11th September, 1876.

Quebec Field Battery.

Commanded by Brigade Major Lieut.-Colonel LaMontagne, in the absence of Major Baby, on leave in Europe. None of the officers of this Battery were present at my inspection, and none attended this year's training except Captain Crawford Lindsay. The Battery was trained by Captain Duchesnay, and Assistant Gunnery Instructor Howard, of the Quebec Gunnery School, under the command of the Brigade Major, who formerly belonged to the Artillery.

Though the results were so far satisfactory, that the gun practice was superior to any 9 pr. M. L. R. Militia Field Battery in the Dominion, amongst those who complied with the rules of the Association. The score being as follows :---Total, 482.

1. Sergeant Hamel, Winner of His Excellency's Medal.....	46
2. do Bancourt.....	42
3. Gunner T. Theophile.....	42
4. Corporal Monney.....	37
5. Gunner Bertrand.....	26

Drivers.

Driver Jacques Trudel.
Corporal Josh Petitdure.
do H. Bordeleau.
Driver T. Charland.

I consider it most undesirable that the absence of the officers should necessitate the training of the battery by officers who do not belong to it. Major Baby and Lieut. DeLery have never before been absent from training, and had leave on this occasion, I believe ; but Lieut. Gauthier has not attended training for the last three years. I should think that it would be advisable that he should be called upon to resign in favor of an officer who would have more leisure to attend to his duty.

I have not been able to obtain the list of deficiencies in the equipment of this battery, which were forwarded to the Brigade Major who, as I before remarked, seems to have assumed command of this battery, which is not, I think, a desirable arrangement.

Quebec Garrison Artillery.

I regret to report that, with the exception of "B" Battery, there is no Garrison Artillery in this important fortress. I have had several applications from gentlemen who are anxious to raise batteries at Quebec and Levis, and the Deputy Adjutant General of the District concurs with me in the opinion that there would be no difficulty in raising three or four batteries of Militia Garrison Artillery, if permission were granted.

There are obvious facilities for their instruction, in connection with the Gunnery School, on the spot.

Gaspé Garrison Battery.

Commanded by Major Slous. A personal accident prevented my inspection of this Battery.

Captain Duchesnay, Quebec Gunnery School, acted as Range Officer at their gun practice, upon which he reports favourably, and the Brigade Major of the District inspected them.

By order of the Major General Commanding, two 24-pr. guns on iron carriages were sent from Quebec, and were mounted in a suitable position, commanding the

entrance of the harbour. The work was done and the platforms laid by the battery, with the assistance of Master Gunner Donaldson, R. A. who was sent in charge of the guns, ammunition and stores.

This battery is badly in want of officers, Major Slous himself being the only one, he holds a first class certificate, but is generally absent in Europe during the winter, and might at any time leave the country.

PROVINCE OF NEW BRUNSWICK.

Newcastle Field Battery.

Commanded by Major R. B. Call. The drill of this battery was remarkably steady and correct. Their gun practice was also very good. The following Dominion Artillery Association prizes were awarded.

1. Gunner J. Matheson.
2. Bombardier J. Russell.
3. do J. Duffy.
4. do J. Murray.
5. Sergeant C. E. Fish.

Drivers.

- Driver James Dickson.
do Frank Walls.
do David Jardine.
do William Taylor.

The carriages have been kept in good order, but the harness requires petty repairs, in consequence of there being no collar-maker. I would recommend that this battery be supplied with muzzle loading rifle Guns, of which there are none in the Maritime Provinces. Major Call has sent seven non-commissioned officers and men through the Quebec Gunnery School since my inspection, who will, I trust, add to the efficiency of this battery.

But a drill shed is much required to enable men to keep up their knowledge during the comparatively idle winter months.

The ground has been presented as a free gift by the County, but will probably be resumed if no shed is built.

Sergeant Hughes, late Royal Artillery, assisted in training this battery, Captain Oscar Prevost, "B" Battery, acted as Range Officer.

Woodstock Field Battery.

I was unable to inspect this battery owing to simultaneous inspection requiring my presence in Ontario.

It was inspected by Lieut.-Colonel Maunsell, D.A.G., of the District, who reports very favourable of its efficiency. Sergeant Jackson of this corps attended the Quebec Gunnery School for a short course.

New Brunswick Brigade of Garrison Artillery.

Commanded by Lieut.-Colonel Foster.

- No. 1. Battery Captain Kane.
2. do do J. A. Ring.
3. do do W. Cunard.
10. do do A. J. Armstrong.

The gun drill and practice of the brigade was very good. And I am of opinion that with the exception of the men of the two Gunnery Schools, who practically are regular soldiers, the New Brunswick Garrison Artillery is unsurpassed among those I have seen in the Dominion. I have less hesitation in paying this tribute to their efficiency, because I can claim no part of the credit of their instruction, which must be given to my late assistant, Lieut.-Colonel Darrel Jago, late Royal Artillery, and to Lieut.-Colonel Foster, who has for many years commanded them and laboured for their efficiency, no doubt assisted by the Commanding Officers of Batteries, and by his Adjutant, Major Underhill, who has a first class certificate from the Kingston Gunnery School.

Major Cunard's, No. 3 Battery, was not drawn for drill this year, but they performed their duties without pay, which marks the *esprit* that exists in the New Brunswick Artillery.

Chatham Garrison Battery.

Commanded by Major Gillespie.

This battery is among those which have availed themselves of the privilege of sending non-commissioned officers gunners to the Quebec Gunnery School.

Illness prevented my superintendance of the gun practice of this battery. Lieut.-Colonel Maunsell, Deputy Adjutant General, assisted by Captain Prevost, Adjutant Quebec School of Gunnery, did so in my behalf, and report favourably. The following Dominion Artillery Association prizes were awarded:—

- 1 Sergeant W. Johnson.
- 2 Sergeant May.
- 3 Gunner Pallen.

A Board of Survey was held upon the loss of a gun carriage by fire. The proceedings were sent to headquarters.

I concur with the Deputy Adjutant General of the District in the desirability of throwing up an earthwork for the protection of the harbour on the site selected by him and Lieut.-Colonel Darrel Jago, Assistant Inspector of Artillery.

PROVINCE OF NOVA SCOTIA.

Halifax Field Battery.

Commanded by Major Graham, who was not present at my inspection, which consisted only of gun practice, for which neither fuzes nor bursters had been supplied. The order of the Major-General Commanding, for batteries to keep their service ammunition in their own charge, will obviate this in future.

The practice was very good, as might be expected from the accuracy of the guns and the intelligence of the men.

The following prizes were gained:—

- 1 Sergeant McLeod, His Excellency's Medal for 6-pr. B.L.R. Guns.
- 2 Gunner Latherne.
- 3 Gunner Croskill.
- 4 Gunner Taylor.
- 5 Gunner S. Moodie.

This battery has several additional prizes presented by friends

Driver's Prize.

Driver Chas. Frais.

I cannot report on the drill of this battery, as I did not see them drilling, owing to the absence of some of the men at the Provincial small arms match.

I inspected the stores; the ledger is very correctly kept by Lieut. Imlah. The list of deficiencies will be found under the head of armament.

Halifax Garrison Artillery,—First and Second Brigades.

Commanded respectively by Lieutenant-Colonel Mitchell and Lieutenant-Colonel Macpherson.

I cannot report on their efficiency, as I had no sufficient opportunity of seeing them at their legitimate weapon.

If only 12 days' drill is allowed for Garrison Artillery, and the larger proportion of that time is taken for infantry instruction, it is quite impossible to attain efficiency in either branch. This is the more to be regretted, considering the nature of duties they may be called upon to perform at Halifax as auxiliaries to the Royal Artillery.

The guns reported upon by my late assistant, Lieut.-Colonel D. Jago, as having been left two years dismounted, have been mounted through the kindness of the Lieut.-General Commanding, Sir O'Grady Haly, and the Officer Commanding Royal Artillery, Col. Elgee.

I would respectfully submit, for the consideration of the Major-General Commanding, whether it would not be advisable to request permission to have the Garrison Militia Artillery at Halifax told off to the various forts, with a view to their instruction with the weapons they would be called upon to use in case of emergency; the gun practice being, however, as a matter of economy, carried on only from the $\frac{3}{4}$ rifled guns and smooth-bore armament, which were procured free of cost, from the Imperial Government, by the Lieut.-General Commanding.

Digby Garrison Battery.

Commanded by Captain J. Daley.

This battery was not drawn for training this year. I inspected the armament and found the carriages unserviceable from age; new ones are being supplied. A slight earthwork with iron hand gabions would complete this battery in an inexpensive and durable manner. A small powder magazine, in a safe locality, is also required. The Captain has constructed (but has not yet I believe received the allowance for) a store for small arms, which I found in good order—52 rifles, except 3, the springs of which require renewal. I would recommend their being sent to the Storekeeper at Halifax for repair.

In concluding my remarks on the Artillery of Nova Scotia, I beg to state that the absence of Artillery Instructors is very apparent. With the exception of Lieut. Imlah, who obtained a first-class certificate with great credit to himself, no officer, non-commissioned officer or gunner from Nova Scotia has attended the Gunnery School.

Though the Adjutants of the 1st and 2nd Brigades of Artillery are no doubt very efficient, having both formerly served in the Royal Artillery, they are not sufficient of themselves to meet the requirements of a whole Province, whose artillery officers at present instructed only in the Infantry School at Halifax, obtain infantry certificates for artillery promotion, added to which, the preponderance given to infantry drill at the short annual training of 12 days renders artillery efficiency impracticable in a Maritime Province where it is perhaps most necessary, and I should suppose easily obtainable from the presence of the Royal Artillery if from no other source.

PROVINCE OF PRINCE EDWARD ISLAND.

Charlottetown Batteries of Garrison Artillery.

No. 1 Battery commanded by Major Pollard.

No. 2 do do Morris.

The physique and appearance of the men is good, but means of instruction are limited, only one officer, Lieut. Irving, having passed through the Gunnery School. They have no skids or means of learning shifting ordnance. The standing gun drill and practice with 6 pounder field guns (for which calibre only ammunition had been sanctioned), was very good. The carriages of the 6 pounder Field Battery are in good order, and could be converted to carry the 6 cwt. 9-pr. muzzle-loading rifled gun if it was thought advisable to convert one of these batteries into a Field Battery, which Colonel the Hon. Hamilton Grey, D.A.G., informs me the officers are anxious to do, as there would be no difficulty in procuring horses and drivers from the rural population. Such a battery could be readily moved to any part of the coast to resist a hostile disembarkation.

The small arm and company drill of these batteries was good. I inspected the rifles, accoutrements, and uniforms, which were in good order, but no chevrons had been supplied for the non-commission officers.

The guns in the battery at Government House Point are serviceable, but require lacquering, the carriages painting and petty repairs. Lieut. Irving and Sergeant Cartmill, late R. A., acted as Instructors to these batteries.

Georgetown Battery of Garrison Artillery.

Commanded by Capt. Owen.

This battery was not training during my visit to Prince Edward Island.

Summerside Battery of Garrison Artillery.

Commanded by Capt. Price, who is at present undergoing a course of instruction at the Quebec Gunnery School. I did not delay to inspect this battery, as they have no guns, and carried out their training only as infantry.

It would be advisable to supply a couple of garrison guns, for which an inexpensive earthwork could be thrown up by the men themselves during training.

There is a good drill-shed, and the men were anxious to carry out voluntary unpaid drill during the winter evenings, but authority for the expense of heating and lighting was required. Evening drills of this kind are, in my opinion, the only practical method of obtaining efficient volunteer artillery.

I would recommend that two 24 pr. or 32 pr. guns and carriages be sent to this battery.

GENERAL REMARKS.

FIELD ARTILLERY.

The Militia estimates having been reduced in the past year, it was considered advisable to diminish the expenditure by not horsing the wagons, which are no longer allowed to manœuvre with troops in Europe.

For the next year I would recommend the following proportion of horses as the least that would be commensurate with due efficiency:—

	Horses.	
Combatant Officers.....	4	
Surgeon.....	1	
Veterinary Surgeon.....	1	
Sergeant Major.....	1	
Acting Quarter-Master Sergeant.....	1	
N. C. Officers in charge of guns.....	4	
Trumpeter	1	
4 guns, 6 horses each.....	24	
Spare wheel, horses each.....	2	} May be utilized for riding drill when not required, as also the Quarter Master Sergeant's and Trumpeter's.
Lead	4	
Cart for artificers' tool chests, &c....	2	
Total.....	45	horses.

If the battery has to march, transport for tents and extra ammunition could be supplied as for infantry, or the ammunition wagons horsed for the day or days of march.

The establishment of 70 non-commissioned officers, gunners and drivers should be employed as follows:—

Sergeant Major.....	1
Acting Quarter-Master Sergeant	1
Pay and Orderly Room Clerk.....	1
Non-Commissioned Officers in charge of Guns.....	4
Hospital Orderly.....	1
Trumpeters.....	2
Saddler	1
Furrier.....	1
4 Gun detachments.....	32
Cooks—Men's Messes.....	2
Total Non-Commissioned Officers and Gunners.....	46
Drivers Gun.....	12
“ Spare.....	6
To clean Officers horses and appointments.....	6
Total Drivers.....	24
Total Gunners.....	46
Spare men for Guards, Stable Pickets, Casualties, &c.....	10
Total Non-Commissioned Officers, Gunners and Drivers.....	70

The men mounted on the off horses should be employed to clean their riding horse and harness.

I concur in all the opinions expressed by Lieut.-Colonel Irwin, and as regards the unsuitability of serge trowsers for mounted men, and would recommend the issue of

would be granted to throw up such easily obliterated works, which might on emergency prove a valuable protection to a small harbour. Cheap drill books issued free of cost to the Militia are much required, with the sanction of the Major General Commanding. I have been for some time occupied in their preparation; the Quebec Gunnery School Press having been employed in printing them, but the cost of paper and material has yet to be defrayed.

THE DOMINION ARTILLERY ASSOCIATION.

This Association was founded last year for the development of gunnery skill, and the dissemination of artillery knowledge throughout the Dominion, exciting emulation by prizes for good gun practice, and has been a success. A somewhat similar system has been introduced into the Royal Artillery by His Royal Highness the Commander-in-Chief. His Excellency the Governor-General is Patron, and has presented medals for competition among the Militia Artillery corps. The Major-General Commanding is President of the Association; the Adjutant-General, Vice-President. The Government generously granted the sum of seven hundred dollars as for Rifle Associations. The whole of the Militia corps in Canada, with three or four exceptions, have subscribed, an addition to the Government grant. The amount has chiefly been expended in the purchase of gold embroidered badges and bronze cross guns for the successful competitors in the various corps; by this means an Artillery marksman is at once recognized, and it is hoped that increased efficiency will be obtained, and much waste of valuable ammunition by unskilled men avoided.

The accounts of the Association will be laid before the Council, in a detailed report, at the next general meeting at Ottawa.

ENGINEERS.

I had no opportunity of inspecting any Engineer Companies this year, but the want of entrenching tools and facilities for fascine and gabion making, prevents any practical instructions in this branch. The establishment of companies in connection with the Gunnery Schools, as suggested by the Major-General Commanding, would lead to the diffusion of the practical duties of this branch among the Militia.

ARMAMENT.

Last year I reported very fully on the material and stores in my immediate charge. I am not aware of any changes except that, through the recommendation of the Major-General Commanding, ten 64-pounder muzzle loading rifle guns have been ordered for the Fortress of Quebec, and six for St. John, New Brunswick, for which place I would recommend, for consideration, the addition of two 80-pounder muzzle-loading rifle guns, for which two carriages and traversing platforms on Cartridge Island would be suitable. I must again beg serious attention to my previously reported deficiency in the proportion of tin cups, and the absence of suitable percussion fuzes, which would prevent the effective use of the only rifled garrison guns in the Fortress of Quebec.

I believe the order has been issued for the conversion of the 12-pounder breech loading rifled gun sleighs to suit 9-pounder muzzle-loading rifled guns; also for the conversion of the 9-pounder smooth-bore ammunition waggons to suit rifled guns.

Entrenching tools are required. There are none in store, as far as I can judge from the published report of the Director of Stores.

Circumstances might arise which would render it inconvenient to have the field gun ammunition stored in Toronto, which appears to be the case. Without considering the cost of sending stores so far West, a proportion of which have to be returned to Quebec when demanded, it might be advisable to leave some at Quebec, Montreal and Kingston *en route*.

Store ledgers have not been issued to all Garrison Batteries, I submitted a form in 1875. Herewith detailed reports on the armaments inspected during my tour. I trust the deficiencies may be made good, as far as practicable, from the reserve stores. With the exception of the Durham Battery, whose equipment, I thought, required attention, I have not reported in detail on the armaments of Ontario, which have, no doubt, been previously reported upon by Boards, of which the Inspector of Artillery of that Province was a member.

I would recommend that the gun at Bear River, where there are no gunners, be sent either to Port Mahon or Halifax. Its carriage is reported to have been set fire to intentionally and burnt.

Major Gray, Dominion Storekeeper at Halifax, kindly afforded me an opportunity of inspecting the military stores in his charge. I found them in excellent order, as far as the means at his disposal permit.

There appears to be no Artillery corps at Sidney, where there is an armament.

9-POUNDER MUZZLE LOADING RIFLED GUN CARRIAGES.

Two cap-squares of the 9-pounder muzzle loading rifle guns at Quebec broke at practice; one in winter, the other firing with 4° depression. Two of the iron stays that support the rear of the ammunition boxes also gave way.

The fractures, especially in winter, showed a highly crystalline structure which, even in tested wrought iron, is said to be produced by vibration or extreme cold. The extra strain on the cap-squares when firing with depression might be somewhat reduced by raising the rear of the trunnion hole $\frac{1}{2}$ -inch if thought necessary. The whole have been repaired by the Ordnance Armourer of the Quebec Gunnery School.

These, with a few heads of screw bolts of elevating screw box, broken during practice at Hamilton (also firing with depression) are the only injuries I have noticed. The iron carriages supplied from the War Office, may, therefore, be said to stand the vicissitudes of the Canadian climate with satisfactory results.

PROOF OF GUNPOWDER.

I tested samples from fourteen lots of the cannon powder, large grain and rifle large grain, in charge of the Store-keeper at Quebec, with the mortar eprouvette, and find the strength below the standard laid down; but on comparing the results with records of proof by the two last (Royal Artillery) Inspectors of Warlike Stores, I find it has not deteriorated materially.

Herewith Table of Results.

I recommend that the lots numbered 905, 911 and 893 be issued first, and that, as far as practicable when lots are broken in bulk, the issue should be finished before another lot is commenced.

Of the amount of powder and projectiles in charge of the Director of Stores and its distribution under his subordinates in the various localities where it might be required, I am not informed, nor have I inspected it except at Quebec as directed

Proof of Gunpowder in Storekeeper's Charge at Quebec, November, 1876.

Maker's Name.	No. of Lot.	Date of Manufac- ture.	Description of Grain.	No. of Barrels re- maining.	1st.	2nd.	3rd.	Average, 1876.
Hall & Son.....	872	1861	L. G.	100	247	250	247	248
do	873	1861	do	100	248	243	253	248
do	878	1861	do	100	267	271	275	271
do	883	1861	do	67	253.5	247	236	245.5
do	893	1861	do	100	230.5	233	236	233.2
do	905	1861	do	84	255.5	226	245	242.2
do	907	1861	do	100	269	256	262	262.1
do	911	1861	do	67	265	243	226	244.2
Waltham Abbey.....	781	1864	R.L.G.	100	265	280	261	268.2
do	782	1864	do	100	289	272	294	285
do	784	1864	do	100	248	281	272	267
do	786	1864	do	100	255	257	260	257.1
do	788	1864	do	64	264	259	297	273.1
do	790	1869	do	.....	297	298	281	292

T. B. STRANGE, Lt.-Colonel,
Inspector of Warlike Stores.

SMALL ARM AMMUNITION.

In accordance with directions received I examined specimens of ammunition (boxes for Snider rifle) out of 12 boxes taken indiscriminately from those in charge of the Storekeeper at Quebec, mark V, 1867 and mark VI, 1868.

And I find, as well as I can judge, with the limited means at my disposal, that the ammunition has suffered, but not to such an extent as to be unserviceable. For match shooting the accuracy would probably be affected, the surface of the bullet in some instances having been corroded, probably by the lubricant used. The iron ring has also become oxidised, but the powder does not appear to have suffered materially.

I would recommend (mark V) being issued next year for the instruction of recruits and men in the first year of training with militia corps, and not sold on repayment for match shooting.

If further deterioration is observed, it might be used for blank, if the bullets were removed (and sold) and the brass case pinched together so as to retain the powder, but it should be carefully done under proper supervision, so that no bullets be accidentally left with the blank.

Two boxes of ammunition issued to "B" Battery on repayment were quite unserviceable, as reported upon, 18th August, 1876. These cartridges appear to have been lying either in water or in a very damp place, and having been informed that about 500 boxes of Boxer's ammunition were broken up at Montreal previous to the departure of the Imperial troops, because the ship that conveyed them to this country had been water-logged, I can only suppose that as the unserviceable ammunition came from Montreal, and is of the same pattern as that ordered to be broken up, a few boxes may have escaped notice and got mixed up with the serviceable.

FORTS.

Extensive repairs have been executed in the Citadel and Levis Forts. The casemate walls of the Dalhousie and Richmond Bastions have been rebuilt, and the roof of the latter covered with a wooden shed which preserves the bomb-proofs from the

destructive effects of wet and frost, protects the guns, carriages and stores of the armament, and serves as an excellent Artillery drill shed in winter, in no way interfering with the defence.

The same construction has been commenced over the Dalhousie Bastion, to preserve the repairs just executed. In my opinion this arrangement is the most satisfactory and economical solution of the difficulty of preserving forts in this climate. Colonel Lovel, commanding Royal Engineers at Halifax, approved of the construction when visiting Quebec. The Levis Forts are in a satisfactory condition, and the magazines compare favorably in dryness, with those at Halifax, in which powder is actually stored—perhaps, in some measure owing to the dry climate of Quebec.

As regards the lower lines and fortifications in general detailed reports have been sent to Head Quarters from time to time. I would only remark that since the no longer necessary outworks have been given over to the Corporation of Quebec, to be used as building material, they have unfortunately not confined their operations to removing the facing stones from them only, but also from the enciente between St. Johns and Artillery Bastions, to such an extent that it is doubtful whether there will be, in some localities, wall enough left to affix the gates designed by His Excellency the Earl of Dufferin, one of which Her Gracious Majesty has been pleased to present.

It is perhaps needless to remark that the plans of His Excellency are equally desirable, from a military, as from an æsthetic point of view, affording, as they would, complete military communication round the works.

That part of the West Glacis, known as the Cove Fields, has been sold for building lots to a depth of 225 feet south of the St. Louis Road.

In previous reports I have intimated the important points in which I thought it desirable to construct earth batteries, or repair those already existing, by serving out entrenching tools and gabions to the Militia Artillery. In addition to these, I would submit for consideration the localities of Cobourg, Port Hope, Toronto, Hamilton and Niagara, where, however, there is no Artillery corps.

I have the honor to be, Sir,
Your obedient servant,

T. BLAND STRANGE, Lieut.-Col., R. A.
Inspector of Artillery and Warlike Stores.

December 27th, 1876.

REPORT ON THE ARTILLERY OF THE PROVINCE OF ONTARIO.

SIR,—I have the honor to inform you that during the past year I inspected the following Batteries of Artillery in the Province, viz :

Kingston Field Battery.		
Ottawa do do	do	do
Wellington do do	do	do
Welland Canal do do	do	do
London do do	do	do
Port Hope Garrison do do	do	do
St. Catherines do do	do	do
Trenton do do	do	do

I annex to this report an inspection state of the different batteries inspected. I have the honor to submit the following detailed report on the several batteries above mentioned.

INSPECTION REPORT, 1876.

FIELD BATTERIES.

Kingston Field Batteries.

Inspected at Camp Kingston, 11th September, 1876. Major Kirkpatrick (absent sick leave), Captain Graham, Captain H. Wilmot and Lieut. J. Wilmot.

This battery has received a new equipment of four 9-pounder muzzle-loading rifled guns, carriages and limbers, horses very good.

Harness, clean and in good order, but in several cases not well fitted, only T bits were used, and the drivers were not provided with whips, deficiencies which will be remedied next year, uniform accoutrements, generally good and clean.

Marching past and field manoeuvres under the officer commanding, were very well performed. Standing gun drill very good, and both non-commissioned officers and men appeared to possess a very fair knowledge of ammunition and stores.

Gun practice, carried out in accordance with the the rules of the Dominion Artillery Association, at a land range about six miles from Kingston. The suitability of this range not having been known during the annual drill, the practice was then postponed with the intention of carrying it on during the winter, on the ice; this however, proved to be impracticable having in view the recording of the result by the Dominion Artillery Association, and the practice was carried out on the 3rd and 6th November. The scoring was very good but owing to several of the best drilled men not being available, much time was lost by several of the competitors, and several mistakes occurred.

Sergeant Major W. Clarke, of the School of Gunnery, was attached to this Battery as Drill Instructor during its annual drill.

Ottawa Field Battery.

Inspected at camp, Ottawa, 23rd September, 1876. Captain Stewart, Lieutenants Savage and Billings. Guns and carriages, 9-pounder muzzle-loading rifled, in very good condition.

Horses very good.

Harness clean and in good order, and generally well fitted.

Uniforms and accoutrements in very good order.

Marching past very good.

Field manoeuvres under the officer commanding were fairly well preformed, but the subalteran officers being unable to assist in carrying out the orders, there was occasional delay and want of smartness.

Standing gun drill good, but I notice a great deficiency in knowledge of ammunition and stores. Captain Stewart reports that several of his men who had obtained Gunnery School certificates, had joined the Mounted Police, and the want of a sufficient number of qualified non-commissioned officers was very apparent.

Gun practice carried on under the superintendence of Major Cotton, "A" Battery, on the 26th and 27th September, at a water range near Ottawa, the state of the weather on both days being very unfavorable no accurate range report could be obtained, the firing was according to the rules of the Dominion Artillery Association.

Field Battery, Wellington.

Inspected at Camp Guelph, 26th September, 1876. Major Macdonald, Lieuts Nicholl and MacCrae.

This Battery has just received its new equipments of four 9-pounder muzzle loading rifled guns carriages and limbers.

Horses very good.

Harness in good order, and well fitted.

Uniform and accoutrements very clean and in good order.

Marching past very good.

Field manœuvres under Major Macdonald very well performed, subaltern officers and non-commissioned officers being well up in their duties.

Standing gun drill very good, non-commissioned officers and men shewed the good effects of careful instruction, and shewed good knowledge of ammunition and stores.

Gun practice carried out on 27th September, in accordance with the rules of the Dominion Artillery Association, at a good range on Puslinch Lake, nine miles from Guelph; every detail was well and quickly performed, and had it not been necessary to take certain precautions to prevent any possible dangerous ricochet of the Shrapnel shell, the total score would have been very good.

This battery presented a very good appearance on parade, the men being steady and quick in the execution of their duties; the officers and the non-commissioned officers deserve great credit for the pains they have evidently taken in the instruction of the men, and for the present very efficient state of the battery.

Corporal Abbott, "A." Battery, was attached to this battery as Instructor, during its drill.

Welland Canal Field Battery.

Inspected at Camp, Port Colborne, 28th September, 1876.—Lieut. King.

This battery still retains its smooth-bore equipment. Guns and carriages in good order. Horses, with a few exceptions, very good. Harness old and badly taken care of, being dry and hard; no curb chains were used with the harness bits, a deficiency which was pointed out last year, and which, together with the fact that instead of employing 24 horses for 12 days, this battery drilled without them for four days, and employed 36 for the remaining 8, may account for very indifferent driving.

Uniforms old and nearly worn out.

Accoutrements generally clean and in good order.

Marching past, fair, but no field manœuvres had been practiced or could be performed.

Standing gun drill, fair, but non-commissioned officers and men were efficient in a knowledge of ammunition.

Gun Practice.—Owing to some mistake this battery did not join the Dominion Artillery Association, and, consequently, were not eligible for the competition in connection therewith, but shot and shell practice was carried on under my superintendance at suitable range on the lake shore near Port Colborne. After firing about 20 rounds, the practice, which was very good, had to be discontinued, owing to the violent storm of wind and rain.

This battery did not present a very efficient appearance at inspection, which I attribute to its want of officers and qualified non-commissioned officers. Major King, who is nominal commanding officer, reported to me that Lieut. McCracken, who acts as Caretaker of Stores and Drill Instructor, was not present during any portion of the annual drill, and has been reported by him for misconduct.

London Field Battery.

Inspected at Camp, London, 18th October, 1876. Major Peters, Lieuts. Williams and Heath.

Guns and carriages in good order.

Horses very good.

Harness in good order, but not well fitted, and no curb-chains used, which partly accounts for indifferent driving.

Uniforms and accoutrements very clean, and in good order.

Marching past, good.

Field manœuvres, fairly well executed.

Standing gun drill good, and non-commissioned officers and men possess a fair knowledge of ammunition, but owing to a large number of recruits this year, and there being very few non-commissioned officers capable of instructing, the general efficiency was not quite so good as last year.

Gun practice very well carried out, according to the rules of the Dominion Artillery Association, at a land range near London. Score was not very high, owing to defective laying, but the movements were correctly and quickly executed.

Corporal Abbott, "A" Battery, was attached to this battery as Instructor during its drill.

GARRISON BATTERIES.

Port Hope Garrison Battery.

Inspected at Port Hope, 22nd September, 1876, Lieut. Wallace in command.

Men of good physique, with two or three exceptions.

Uniform, new issue.

Arms and accoutrements—kept in bad order.

I accompanied the Deputy Adjutant General of Military District No. 3, at the inspection of this battery. The manual exercise was badly performed, and the men had received no instruction in the firing exercise. The squad drill was indifferent, and only two squads of ten men each had received any instructions in standing gun drill. The battery possesses no officer or non-commissioned officer capable of carrying on instruction, and consequently its efficiency at present is at a low ebb.

St. Catherines Garrison Battery.

Inspected at St. Catherines, 14th November, 1876.

Lieut. See in command—Lieut. Wiley.

Men of very good physique, with two or three exceptions.

Clothing and accoutrements clean, and in good order.

Arms very badly taken care of by permanent storeman.

Inspected at manual exercise, which was well performed; firing exercise indifferent; squad drill good.

Standing gun drill very good.

Gun practice could not be carried on during my inspection, owing to the state of the weather, and I have since been informed by the commanding officer that he has been obliged to postpone it for this year.

This battery has performed upwards of forty-five hours' drill this year, and having several competent instructors, are very efficient; but it is to be regretted that their drill did not take place earlier in the season.

Trenton Garrison Battery.

Inspected at Trenton, 25th November, 1876. Captain Day in command. Lieut. Bonter; Lieut. Francis (on leave).

I accompanied the Brigade Major of Military District No. 3, at the inspection of this battery. The men were, with four exceptions, of very good physique.

Uniforms, new issue; no forage caps.

Arms and accoutrements clean and in good order.

Manual exercise fair; firing exercise indifferent; squad drill fair.

Only one squad of ten men had been instructed in gun drill.

Owing to the fact of nearly all the men in this battery being recruits, the drill having only lasted twenty-four hours altogether, and none of the officers or non-commissioned officers having drilled for upwards of five years, not much efficiency could be expected. But as it appears the intention to carry on drill during the winter evenings, I have no doubt but that the battery will be more efficient next year. Staff Sergeant Bramah, Assistant Gunnery Instructor School of Gunnery, acted as drill Instructor during the annual drill of this battery.

CONCLUDING REMARKS.

Clothing.

I must again repeat the observations made in my last two reports with reference to the issue of serge trowsers to drivers and mounted non-commissioned officers; they are totally unsuited to the purpose, they cannot be worn with straps, are of two thin a material and become unserviceable in a few days.

Repairs and Equipments.

The system of holding a Board of Officers to inspect and report upon the general state of the equipment at the annual inspection could not conveniently be carried out this year; but, with the exception of trifling repairs to harness, &c., which can be locally provided, the general state appears in very good order.

The ammunition boxes of the wagons belonging to those batteries which have received the 9-pounder muzzle-loaded rifled guns, are being altered to suit the new equipment, and when completed will be available for the storage of the reserve ammunition which it is recommended should be kept by each battery at its own headquarters.

Garrison Batteries.

It is to be much regretted that the exigencies of the public service did not permit of a greater number of batteries performing their drill this year, and also that those which did turn out, could not have put in their drill in barracks, as was done last year; for to be even tolerably efficient as an artillery corps much time and trouble must be taken, and especially trained instructors provided. I was notified of the inspection of the Ottawa Brigade of Garrison Artillery, at a time when I had made arrangements to inspect the London Field Battery, then in camp; but as I was also informed that the former had not practised any artillery drills, and were unable to carry out their gun practice, I did not consider it necessary to make subsequent arrangements for an exclusively artillery inspection.

Gun Practice.

I cannot speak too highly of the satisfactory results already attained by the general introduction of the system of competitive gun practice, according to the rules of the Dominion Artillery Association. Although this Association is in its infancy, and the different batteries have only this year for the first time conformed to its regulations, yet the increased interest taken by all ranks in the result of their practice, and the obvious necessity of careful instruction in drill, and a knowledge of ammunition and gunnery, which alone can enable successful results to be arrived at, is of itself very satisfactory, and will, I have no doubt, lead to a much higher standard of efficiency.

Driving.

The prizes for drivers have, in the case of Field Batteries inspected by me, been decided partly by the opinion of their officers as to their general good conduct and diligence, and partly by the result of a competitive trial of skill in driving held during my inspection.

Remarks.

Much, however, remains to be accomplished, and it is hopeless to expect anything but a low standard of general efficiency unless the officers commanding batteries exert themselves to obtain, and retain, the services of officers and non-commissioned officers, who take an interest in their duties, and are willing to undergo the necessary course of training at the School of Gunnery.

It is too often the case that subaltern officers are retained in their position from year to year who are scarcely able to drill a gun detachment, and whose services can be of little, if any, use to the officer commanding; whilst non-commissioned officers are found whose only claim to promotion consists in their age and length of service, and who effectually prevent younger and more energetic men, who have qualified at the School of Gunnery, from succeeding to their positions.

There can be no doubt that officers commanding Batteries of Artillery occupy an onerous and responsible position, a position, too, which has, for the most part, been exceedingly well filled by those now in command in this Province; yet the

increase in efficiency of artillery, caused by the general introduction of rifled guns, demands a corresponding increase in knowledge and ability on the part of those who have to use them, and whilst the Government have been sufficiently liberal in providing and maintaining at great expense, special schools of instruction, it is to be hoped that officers commanding batteries will see the necessity of insisting upon the proper qualifications being attained by these officers and non-commissioned officers, who hold subordinate but responsible positions in their batteries.

I have the honor to be, Sir,
Your obedient servant,

D. T. IRWIN, Lieut.-Col.
Inspector of Artillery.

INSPECTION STATE, ARTILLERY, ONTARIO.

	Present at Inspection.			1st or 2nd Class, or attendance, Gunnery School Certificates.			Military School Artillery Certificates.	Recruits.
	Officers.	N.-C. Officers and Gunners.	Horses.	Officers.	N.-C. Officers and Gunners.	Attendance.		
Field Battery Establishment....	4	74	28	.....	.....	.....	.....	.....
Kingston Field Battery	3	56	28	.....	3	5	2	21
Ottawa do	3	66	28	.....	1	2	.....	15
Wellington do	3	75	28	1	7	8	2	22
Welland Canal do	1	61	42	.....	4	3	1	23
London do	3	74	28	.....	.....	3	2	30
Garrison Battery Establishment	3	42	.....	.....	.....	.....	.....	.....
Port Hope Garrison Battery.....	1	31	.....	.....	.....	.....	1	25
St. Catharines do	2	40	.....	1	2	3	.....	.....
Trenton do	2	42	.....	.....	.....	.....	3	35

D. T. IRWIN, Lieut.-Colonel,
Inspector of Artillery.

APPENDIX No. 4.

REPORT ON "A" BATTERY SCHOOL OF GUNNERY.

KINGSTON, Ont., 31st December, 1876.

SIR,—I have the honor to report that, during the year ending 31st December, 1876, nine officers and 154 non-commissioned officers and men joined this School. Of this number, nine officers and 103 non-commissioned officers and men joined for a short course of instruction. The number from each Battery in the Province will be seen on reference to the subjoined list:—

Batteries.	1875.			1876.		
	Officers.	N. C. Officers and Men.	Total.	Officers.	N. C. Officers and Men.	Total.
London Field Battery				1	8	9
Welland Canal do		3	3		1	1
Hamilton Field do		13	13		6	6
Wellington Field Battery		7	7		12	12
Toronto do		15	15		14	14
Durham do		3	3		2	2
Kingston do		21	21		24	24
Gananoque do	1	3	4		1	1
Ottawa do		3	3		9	9
Winnipeg do		1	1	1		1
Woodstock do	1	2	3			
"A" Battery		49	49		28	28
Collingwood Garrison Battery		4	4		2	2
Sarnia do		4	4			
Goderich do		1	1		2	2
St Catharines do		7	7			
Toronto do	1	4	5	1	4	5
Port Hope do					4	4
Trenton do						
Cobourg do		2	2		1	1
Napanee do		1	1		1	1
Ottawa Brigade Garrison Artillery		11	11		21	21
New Brunswick do	1	3	4		4	4
13th Battalion				1		1
Governor-General's Foot Guards				1		1
do do				1		1
4th Regiment Cavalry				1		1
47th Battalion				1		1
Provisional Battalion, Fort Garry				1		1
Total	4	157	161	9	144	153

The following certificates have been received during the year:—

—	1876.			Total.	1876.			Total.
	Long Course.	Short Course.			Long Course.	Short Course.		
	1st Class.	1st Class.	2nd Class.		1st Class.	1st Class.	2nd Class.	
Officers	2	3	.....	5	.....	2	.....	2
Non-commissioned officers and men .....	.....	13	17	30	.....	22	32	54
Total	2	16	17	35	.....	24	32	56

From the foregoing statement it will be seen that the number of applications for admission continue undiminished, and also that a greater number of non-commissioned officers and men have successfully passed the examination for "Short Course" certificates.

1. Although, as a general rule, a very good class of men have been sent to the School by officers commanding batteries, yet from the constantly recurring fact that many men, after completing their course of instruction, do not turn out with their batteries at annual drill, it is evident that still greater care will have to be taken by the former in the selection of those whom they recommend for admission.

2. The School of Gunnery Rifle Association has been well maintained. It numbered this year 68 members, prize meetings were held, and the usual monthly practice kept up for aggregate prizes.

3. The annual summer camp for a week, in August, was formed on the Lake Shore. Instruction in camp duties, &c., was carried on, and an opportunity afforded for the annual athletic sports.

4. I have the honor to repeat the following recommendations made in previous reports, which have not yet been acted upon, and which will, I believe, tend to increase the efficiency of the School, viz:—

a. Adoption of a third-class certificate for non-commissioned officers and gunners.

b. Increase in the Field Battery establishment of horses, rendered necessary in consequence of the large number of Field Battery officers, non-commissioned officers and men who require instruction.

c. Increase in the establishment of the School during the winter months, corresponding to the diminution in its strength in summer, when it is found that non-commissioned officers and men are seldom able to leave their employments for the purpose of attending a short course of instruction.

I have the honor to be, Sir,
Your obedient servant,

D. T. IRWIN, Lieut.-Colonel,
Commandant School of Gunnery,

REPORT ON "B" BATTERY SCHOOL OF GUNNERY.

CITADEL, QUEBEC, December 31st, 1876.

SIR,—During the year ending 31st December, 1876, eleven officers and ninety-nine non-commissioned officers and men joined for instruction. Of this number the officers were as follows :

3 Artillery,
1 Cavalry,
7 Infantry,

And of the above number twenty-nine non-commissioned officers, gunners and drivers from various militia corps in the Provinces of Quebec and New Brunswick were up for short courses.

One officer and seventy non-commissioned officers and gunners for a long course.

In addition, sixty-two non-commissioned officers and men re engaged.

Appended are returns of certificates granted: (A,) artillery officers; (B,) cavalry officers; (C,) infantry officers; (D,) artillery non-commissioned officers and gunners and drivers.

The number of applicants to join the battery for three years' service, as also for short courses of three months, is more than in previous years, and far in excess of the number sanctioned. As it would be impossible either to carry out the garrison duties, or even provide squads for instruction, if vacancies were kept open, very eligible men have to be refused admission, because there happen to be no vacancies when they apply. They frequently ask to join without pay to take their turn of a vacancy.

Under the circumstances it is to be regretted that an increase of short course men from Militia batteries is not sanctioned, especially during the winter months. For while the artillery of the Maritime Provinces (from which the number of applicants is on the increase) is practically without means of instruction, the Quebec Gunnery School is crippled by not having enough men to form squads for instruction and to carry on the duties of the garrison and necessary fatigues, especially in the Field Artillery branch, which cannot be efficient without the establishment of a complete Field Battery of Instruction, that is, an increase of 16 horses (in addition to the present strength) and 50 non-commissioned officers, gunners and drivers.

Having a selection, the class of men joining the battery is not, in my opinion, inferior in physique, education or conduct to any troops it has been my lot to serve with.

The Temperance Society has averaged, during the past year, about one-third the battery strength.

From a purely civil point of view, I think it is a drawback to the development of a new country, that the force at Quebec is not permitted to be increased. Numerous immigrants of a good class would, if permitted, train themselves as Canadian soldiers and become Canadian citizens. Not readily finding employment in times of depression, they cross to the United States or return to Europe with depreciating accounts of the country.

The Branch School has been discontinued since the loss by fire of the barracks at Montreal. The militia of Montreal is composed of classes in business who cannot leave the city for a course of instruction; a branch school is therefore much needed.

It is a source of gratification to me, for which I have to thank the Government and the Major General Commanding, that the pay of the officers I have instructed has been raised; but three excellent officers, who have done duty in the battery for several years, and whose services cannot well be dispensed with, are still serving on \$1.00 per diem. Their status is unsatisfactory and not clearly defined, which may lead to further complications as heretofore.

I trust the Major General Commanding may think fit to recommend that the liberality shown to their brother officers may be extended to them.

For short course officers the expense of furnishing a room is a drawback. The furniture supplied to a cadet at the Military College would be a boon to officers of the Gunnery Schools.

In accordance with the command of the Major General Commanding, during the past summer the forts at Levis were armed with three 7-inch breech-loading rifled guns, sixteen Caponière carronades, and a proportion of shot, shell and carriages, &c., by "B" Battery, under command of Major Montizambert, at the small cost of \$65, including hire of barges and wharf accommodation. The battery horses doing the draught work.

The racers for the 7-inch guns require to be laid down in concrete; estimates been sent in

The camp for field artillery practice on the Island of Orleans, was under the command of Capt. Short and Lieut. Sheppard; that for musketry instruction, at Engineer's Park, under Capt. Duchesnay, Capt. White acting as Musketry Instructor. Major Frazer performed the onerous duties of Quarter-Master and Supply Officer to the two camps and the six detachments into which the battery was necessarily divided.

Capt. Devine was attached for duty to "A" Battery, and Capt. Prevost, Adjutant of the Gunnery School, attended me in my inspections through the Maritime Provinces, and acted as the Range Officer, while I took the duty of Umpire at the Batteries. Lieut. Wilson, "A" Battery, assisted me in a similar manner in the Province of Ontario.

The Gunnery School printing press has furnished some 1,800 copies of Examination Questions, as well as 1,000 copies of Artillery Manuals for the use of the Militia of the Dominion, also the necessary circulars for the Dominion Artillery Association. I beg again to respectfully draw attention to the fact that these necessary services have not been paid for, nor are the services of a Pay-Sergeant or Office Clerks remunerated by Government.

While the Quebec Gunnery School has been practically expanded into a school for officers of all arms, thereby much increasing the labour of the staff, no adequate provision has been made for men, without which, the military art can no more be taught than chess without pawns. The most energetic and capable can only perform a certain amount of work, intellectual and physical; when more is demanded it has to be left undone, or is done badly, and both the individual and the service suffer.

The Major General Commanding is fully cognizant of the points referred to, and has suggested effectual remedies from time to time. I trust, however, the emergency of the case may be an excuse for reporting upon facts with which he is already familiar.

Notwithstanding the heavy night duty, the usual daily duties, fatigues, &c., the courses of instruction have been carried out.

The usual winter course of evening gymnastics for young soldiers has been continued.

The system of bi-hourly meteorological observations, by means of the non-commissioned officers of the guard relieving sentries, has been also continued.

The averages are taken by Master-Gunner Donaldson, R. A., who has charge of the instruments, and reports through me to Professor Kingston, of the Toronto Observatory, who speaks very favourably of the results thus obtained.

I entirely concur in all the recommendations of the Commandant of the Ontario Gunnery School, especially that a third-class certificate should be established, and though I have no doubt that the school, under his command, is in a highly efficient state, yet I believe it is desirable to have a uniform system of instruction and certificates established for the Artillery throughout the Dominion, which is very far from being the case at present.

I have the honour to be, Sir,
Your obedient servant,

T. B. STRANGE, Lieut.-Colonel, R. A.
Commandant Gunnery School,
Quebec.

[A.]
GUNNERY SCHOOL.
ARTILLERY OFFICER'S SHORT COURSE EXAMINATION RETURN.

Corps and Rank.	Names.	Subjects.—Written.										Subjects.—Practical.										Total Practical.	Decimal.		Remarks.	
		Gunnery	Artillery Material.		Shifting and Working Ordnance, including Knotting and Lashing.	Fortification.	Surveying and Range Finding.	Tactics and Strategy.		Military Law, &c.		Total Theory.	Company Drill.	Field Gun Drill.	Garrison Gun Drill.	Mortar Drill.	7-inch B.L.R. Gun Drill.	Gyn Drill.	Sling Wagon.	Shifting Ordnance.	Riding and Driving, and Sword Drill.		T.	P.		
67th Reg., L.I., Capt.-Et.-Mj.	Vince, D. McLeod.....	500	300	800	400	400	500	400	400	400	200	300	337 1/2	100	150	150	200	60	50	200	100	1060	898	1	84	1st.....
		500	300	800	400	400	480	400	400	200	250	2200	70	135	120	48	40	180	45	180	80	810	559	43	69	2nd....
Montreal Garrison Artillery, Lieutenant.....	Molson, J. W.	200	.....	256	.....	160	100	.....	.....	.....	716	70	105	120	40	120	54	.....	.....	50	559	.....	.....	.....	.....	.....

T. B. STRANGE, Lieut.-Colonel,
 Commandant Gunnery School, Quebec.

To the Adjutant General of Militia

[B.]

GUNNERY SCHOOL, QUEBEC.

CAVALRY OFFICERS' Short Course Examination Return.

Corps and Rank.	Name.	Subjects - Written.				Subjects - Practical.							Decimal.		Class Certificate.
		Fortification.	Tactics and Strategy.	Military Law.	Total Theory.	Company Drill.	Field Gun Drill.	Mortar Drill.	7-inch B. L. R. Gun Drill.	Disabled Field Ordnance.	Riding and Sword Drill.	Total Practical.	T.	P.	
Major, Quebec Hussars.....	*Gray, F. Wood	200	320	180	700	50	75	40	100	100	90	455	.63	.57	First.

*The establishment of horses being insufficient for any cavalry exercise, except the riding school course, this officer was allowed to learn such artillery drills as practicable.

T. B. STRANGE, Lieut.-Colonel,
Commandant, Gunnery School, Quebec.

[C.]
GUNNERY SCHOOL, QUEBEC.

INFANTRY OFFICERS' Short Course Examination Return.

Corps and Rank.	Names.	Written Subjects.								Practical Subjects.				Total Practical.	Decimal.	Class Certificate.						
		Battalion Drill.	500	400	Skirmishing, Guards, etc.	400	Fortification.	400	Military Law.	300	Tactics and Strategy. Obligatory.	400	Tactics and Strategy. Voluntary.				200	Total Theory.	2200	Company Drill.	100	Battalion Drill.	200	Garrison Gun Drill.	150	Riding and Sword Drill.	100
Kamouraska Provisional Battalion :— Lieutenant	Taché, E. G.	355	365	190	190	220	150	1600	1630	150	200	2200	180	180	120	80	470	.74	.85	First		
Portneuf Provisional Battalion :— Captain	Pacquette, A.	355	320	190	190	190	250	1065	1600	100	80	1065	180	180	90	80	430	.65	.78	First.		
Captain	Bruret, Z.	445	280	155	150	150	.....	1030	.....	.....	80	1030	180	180	90	80	430	.64	.78	First.

*These subjects do not affect the decimal in the case of Captain Pacquette.

T. B. STRANGE, Lieut.-Colonel,
 Commandant, Gunnery School, Quebec.

[D.]
GUNNERY SCHOOL.

Non-commissioned Officers' and Gunners' Examination Return.
SECOND-CLASS CERTIFICATES.

Corps.	Rank.	Name.	Subjects—Written.			Subjects—Practical.								Total.	Decimal.	Remarks.
			Gunnery.	Artillery Material.	Shifting & Working Ordnance.	Company Drill.	Field Gun Drill.	Garrison Gun Drill.	Mortar Drill.	7-inch B. L. R. Gun Drill.	Gyn Drill.	Sling Wagon.	Shifting Ordnance, including Knotting and Lashing.				Riding and Driving and Sword Drill.
Charlottetown			350	300	200	100	150	150	50	200	60	50	200	200		
Gar. Artillery	Lieutenant...	* Irving, James.....	320	240	160	100	120	150	40	140	48	.....	160	100	1,398	.70
Quebec Field Battery	Sergeant	D'Alaire, André.....	340	250	140	50	120	105	35	140	.....	.....	100	100	1,380	.72
New Brunswick			340	275	180	90	120	135	45	180	54	45	160	.....	1,624	.89
Gar. Artillery	do	Hay, Andrew	120	70	85	80	75	90	35	160	48	25	120	.....	878	.47
do do	do	May, Mathew	294	265	168	80	120	120	45	180	54	40	180	.....	1,546	.85
"B" Battery	Bombardier	Stevens, George	335	40	180	90	120	135	45	180	54	40	180	.....	1,309	.77
do	do	McCartney, T.....	202	160	115	90	135	120	45	180	54	40	160	.....	1,301	.71
do	do	O'Neil.....	335	250	170	80	135	135	45	160	54	40	180	.....	1,684	.87
do	do	Swanson	75	90	115	70	103	135	45	180	48	40	160	.....	1,061	.58
do	do	Donnelly.....	315	200	163	80	120	120	45	180	48	40	160	.....	1,471	.81
do	do	Mason	335	270	185	90	135	135	45	180	48	40	160	.....	1,623	.89
do	do	Morrice	285	245	156	80	120	120	45	180	54	40	160	.....	1,484	.81
do	do	Williams	300	225	150	70	75	135	40	162	42	35	140	.....	1,372	.75
do	do	Wheelock	275	175	120	70	120	120	45	180	48	40	140	.....	1,333	.73
do	do	Nelan	295	170	155	90	120	120	45	180	54	40	160	.....	1,429	.78
do	do	Walmsley.....	300	120	160	60	75	105	40	160	54	40	140	.....	1,254	.69
do	do	Kennedy.....	290	228	160	80	120	105	40	160	.....	25	140	.....	1,348	.77
Digby Garrison Artillery	Corporal	Waters	150	138	117	70	75	75	35	100	.....	25	90	.....	1,875	.50
do ..	do	Dennison														

"B" Battery.....	Bombardier.....	275	164	148	90	120	105	40	140	25	.....	.....	1,107	.71
do	Gunner.....	282	145	133	80	120	105	40	160	30	140	.....	1,235	.70
do	Billman.....	293	85	152	90	105	105	40	120	30	160	.....	1,180	.67
do	Burns.....	334	197	152	70	120	90	40	140	30	160	.....	1,326	.68
do	Chamberlin.....	188	81	128	60	105	75	30	.....	25	120	.....	812	.51
do	DeMulder.....	336	176	112	60	120	90	40	120	30	100	.....	1,184	.67
do	Girel.....	330	130	144	50	120	120	40	140	30	160	.....	1,324	.75
do	Hoffand.....	287	88	116	80	105	105	40	160	30	160	.....	1,171	.66
do	Harrla.....	288	149	93	80	120	105	.....	.....	30	160	.....	1,165	.66
do	Rackley.....	241	165	120	80	.....	75	30	120	36	120	.....	1,017	.61
do	Baugh.....	280	240	140	70	.....	105	35	180	54	160	.....	1,304	.79
do	Courtnay.....	276	150	112	60	.....	75	30	160	42	140	.....	1,085	.65
do	Croteau.....	259	210	120	70	75	25	120	36	25	100	1,034	.62
do	Craig.....	294	240	122	70	90	30	160	42	35	160	1,243	.76
do	Roulean.....	255	210	122	80	105	35	180	54	40	160	1,241	.75
do	Ruthven.....	246	180	120	90	.....	105	30	100	36	120	.....	1,057	.62
do	Stock.....														

[D.]—Continued.
FIELD BATTERY.
 Non-commissioned Officers' and Gunners' Examination Return.

Corps and Rank.	Names.	Subjects.—Written.					Subjects.—Practical.							Total.	Decimal.	Remarks.	Qualifying Decimal, b.
		Gunnery.	Artillery Material.	Stable Duties, Dr-ving, Harnessing.	Squad and Arm Drill.	Field Gun Drill.	Garrison Gun Drill.	Mortar Drill.	Field Battery Move-ments.	Gyn Drill.	Sword Drill.	Disab'd Field Ord-nance.	Riding and Driving and Sword Drill.				
Woodstock F'ld Bat-tery:—		350	300	200	100	150	150	50	200	60	50	200	200	200	1,550		
Sergeant.....	Jackson.....	280	180	180	50	105	.....	.....	160	.....	25	.....	160	.....	1,140	.72	
Bombardier.....	Weldon.....	280	185	180	50	105	.....	.....	150	.....	25	.....	160	.....	1,135	.72	
do.....	Duffy.....	161	162	80	60	90	.....	.....	140	.....	30	.....	120	.....	1,023	.58	
Quebec Field Bat-tery:—		218	186	94	50	60	.....	.....	80	.....	30	.....	100	.....	918	.52	
Sergeant.....	Lery.....	213	180	96	60	135	.....	.....	160	.....	35	.....	140	.....	1,199	.68	
Corporal.....	Matheson.....	234	183	100	60	103	.....	.....	140	.....	30	.....	120	.....	1,150	.65	
do.....	Preston.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

T. B. STRANGE, Lieut.-Col.,
 Commandant Gunnery School, Quebec.

APPENDIX No. 5.

MILITARY COLLEGE HALF YEARLY REPORT.

*From Commandant Military College to Major-General Selby Smyth, President
Military College, Commanding Militia, Canada.*

KINGSTON, 27th January, 1877.

(1.) SIR,—I have the honor to submit the following report of the Military College from its opening on the 1st June, 1876, to the completion of its first term, viz: 2nd February, 1877.

Staff of College at opening.

(2.) The superior Staff of the College at the date of its opening, consisted of the following officers, Military and Civil.

Lieut.-Col. E. O. Hewett, R.E. Commandant.

Captain J. B. Ridout, 90th L.I. Captain of Cadets.

Captain E. Kensington, R.A. Professor, Mathematics and Artillery.

Captain G. W. Hawkins, R.A. Professor, Fortification and Military Topography.

Rev. G. Ferguson, B.A. Professor of French and German.

Detail of Cadets at opening of College.

(3.) Eighteen gentlemen having previously undergone a competitive examination, and being found qualified for cadetships, reported for duty at the Military College on 1st June, 1876. (*Vide* Appendix (A) for detail information.

Attestation and Equipment of Cadets.

(4.) The cadets after having taken the oath of allegiance to Her Majesty, and subscribed to serve as cadets of the Military College of Canada for the course of four years, duly subject to the Mutiny Act, Articles of War, and Regulations for Militia, &c., &c., were furnished with arms and accoutrements, uniforms and kit complete; the whole of the latest approved patterns for Her Majesty's Forces.

Course of Study.

(5.) The cadets at once entered upon the course of study and exercises prescribed for the junior or 8th class, viz:—

Mathematics.

Geometrical drawing.

Modern languages.

Infantry drill.

Swimming.

Discipline.

Cadets appointed Non-Commissioned Officers.

(6.) At various dates six cadets were appointed non-commissioned officers in order to provide chain of responsibility, assist in maintenance of discipline, and train for command.

Military Camp St. John's Island.

(7.) On the 3rd August the staff and cadets proceeded to camp at St. John's Island (St. Lawrence River), and returned to the Military College on 11th August. While in camp the cadets performed the full routine duties of a military camp, such as guard day and night, cooking, tent pitching, &c.

Inspection of College by the Honorable the Premier, and Major-General Commanding Militia.

On the 9th July the College and cadets were visited by the Honorable the Premier, and on the 19th October were inspected by yourself; on both of which occasions the College had the honor of receiving expressions of commendation.

Quarterly Examination in September, 1876.

(9.) In addition to occasional examinations, the regular quarterly examination was held in September, 1876, at which the cadets showed moderate, but not marked, improvement.

Half-Yearly Examination, January, 1877.

(10.) The half-yearly examination for class promotions was held during the week 15th to 20th January, 1877. The marks obtained at this examination being added to those gained at the quarterly examination, and for notes and drawings executed during the term, to determine the position of the cadets during the ensuing term. (*Vide* Appendices (B.) and (C.) for detail information.)

(11.) The change of places consequent on the examination is noticeable. This is partly due to some subjects of entrance examination not forming part of the College course, and to the greater prominence, or introduction in the latter, of mathematics, modern languages, military exercises, conduct and discipline; natural ability and application account for the rest.

(12.) I am satisfied with the general result of the examination, but perhaps the most encouraging and valuable sign is that the cadets as a body have improved in accuracy, and in inclination and power of application; in other words, have learned better how to make use of their natural capabilities.

Mathematics.

The Instructor of mathematics observes that though there is still deficiency in thoroughly mastering a subject, there is marked improvement in accuracy and attention to instruction.

Geometrical Drawing.

The almost entire absence of previous instruction in drawing, either mechanical or freehand, is very marked, causing a lack of precision and exactness of which the cadets are themselves conscious. The progress of the cadets, however, in geometrical drawing is very satisfactory, and has earned the entire approbation of the Instructor.

Modern Languages.

The Instructor in modern languages justly comments on the deficiency of thorough school training in French, but reports gratification with the number and success of cadets who have undertaken the voluntary study of German.

Cadets obtaining Prizes.

(13.) The following cadets have gained the prizes presented by Government, viz:—

Lance-Corporal A. Wurtele.—Class prize.
 Cadet A. Perry.—Mathematics.
 Corporal L. H. Irving.—Geometrical drawing.
 Cadet H. Wise.—French.
 Corporal L. H. Irving.—German.

Lance-Corporal Wurtele and Corporal Irving, will, by regulation, be entitled to wear distinctive honorary badges on their uniform during the ensuing term.

Drill.

(14.) The cadets exhibit very considerable aptitude for drills and military exercises, and have all learned to swim.

Discipline.

(15.) The prompt obedience, punctuality, regularity and order necessary to a military organization, although novel to the cadets, soon became a habit with them which they already not only see the object of, but appreciate. The camp duty was performed with interest and intelligence, and unmistakable pleasure.

Duty by Cadet Non-Commissioned Officers.

(16.) The cadets appointed non-commissioned officers have performed their duties with strictness, impartiality and judgment.

Conduct of Cadet Company.

(17.) It is most gratifying to be able to report my thorough satisfaction with the unvarying good conduct of the cadets, both in and out of barracks; the gentleman-like tone maintained amongst themselves, and the respect and good feeling shewn towards their officers; in fact the discipline and military bearing of the Cadet Company is good.

Health.

(18.) The health of the cadets has been excellent, their growth and greatly improved appearance speaking for itself as to the messing arrangement, and the due proportion of physical and mental exercises.

College Buildings, Existing Block

(19.) The existing college building is suitable for the present arrangement and numbers, and will admit of accommodation for about 20 additional cadets.

New Educational Block.

(20.) The block now in course of construction, will, when completed (which it should be by next September), comprise the educational and mess establishments, and the existing building will then revert to the purpose for which it is admirably adopted, viz: Barracks for about 60 cadets.

Professors' Quarters and Captain of Cadets Quarters.

(21.) The site of the College, and its distance from Kingston (very advantageous in most respects), renders the early provision of quarters for the professors a matter of importance, and the more complete separation, though remaining under the same roof, of the Captain of Cadets quarters from the cadets barracks, is extremely desirable as soon as the new educational and mess block is ready for occupation.

Water Supply.

(22.) The water supply of the College as a complete establishment, requires early consideration and action.

Future Staff.

(23.) The Staff of the College, will, of course, require augmentation as the cadets increase in numbers, but more especially as they advance towards a greater number of separate subjects of instruction.

Duty by Staff.

(24.) In closing my first report of the Military College, I wish to record my indebtedness to all the officers, military and civil of the College Staff, who have, without exception, with zeal and ability exerted themselves to the uttermost to advance the welfare of the College, and the intellectual and moral training of the cadets.

It need hardly be remarked that the organization and working of a new institution, the preparation of courses of instruction, and the initiation of discipline, &c., &c., has necessarily entailed upon these officers, duty more onerous and responsible than is ordinarily called for, or requisite, in an establishment of long standing.

The staff of non-commissioned officers have also been unremitting and reliable in their several duties.

I have the honor to be, Sir,
Your obedient servant,

E. O. HEWETT, Lieut.-Col. R.E.
Commandant, Military College

APPENDIX (A) to Half-Yearly Report, Military College.

Names (alphabetically), of Cadets.	Residence.	Age on joining Military College.	Where Educated.	Marks obtained at Examination for entrance to Military College.	Seniority on joining Military College.
Cochrane, J. B.	Brockville, Ont.	15 1/2	High School, Brockville	3,029	14
Davis, F.	York, Ont.	16 1/2	do Perth	3,263	15
Davis, W. M.	Aylmer, Ont.	19 1/2	Canadian Literary Institute, Woodstock	3,567	8
Denison, S. J. A.	Toronto, Ont.	16 1/2	Upper Canada College, Toronto	3,382	13
DesBrisay, C. A.	Bathurst, N.B.	15 1/2	Bathurst Grammar School, N.B.	7,244	5
Dixon, F. J.	Belleville, Ont.	19 1/2	Ontario College, Belleville	2,368	12
Fairbank, C. O.	Petrolie, Ont.	17 1/2	Hellmuth College, London	4,686	10
Freer, H. C.	Brockville, Ont.	17 1/2	Trinity College School, Port Hope	8,388	7
Irving, L. H.	Hamilton, Ont.	20 1/2	Collegiate Institute, Galt	3,277	16
Keefe, H. W.	Ottawa, Ont.	17 1/2	Bishop's College School, Lennoxville	8,079	2
McPherson, D.	Bath, Ont.	18 1/2	High School, Napanee	6,168	4
Perley, G. E.	St. John, N.B.	18 1/2	Stovell's Academy, St. John, N.B.	1,930	18
Perry, A. B.	Napanee, Ont.	18 1/2	Grammar School, Napanee	3,310	3
Reed, T. L.	St. John, N.B.	17 1/2	St. John's Grammar School, N.B.	3,910	17
Rivers, V. B.	Brockville, Ont.	16 1/2	Hellmuth College, London	5,699	11
Spelman, J.	Ottawa, Ont.	16 1/2	High School, Ottawa	5,298	9
Wise, H. E.	Ottawa, Ont.	16 1/2	Trinity College School, Port Hope	7,201	6
Wurtela, A. G. G.	Quebec	19 1/2	Bishop's College School, Lennoxville	9,534	1

E. O. HEWETT, Lieut.-Colonel, R.E.,
Commandant, Military College.

KINGSTON, 27th January.

APPENDIX (B) to Half-Yearly Report.

Order in Class previous to Half-Yearly Examination.	Names Alphabetically.	Rank.	Marks Counted.						Total.	Order in Class after Half-Yearly Examination.	Remarks.
			Mathematics	Geometrical Drawing.	French.	German.	Drills and Exercises.	Conduct and Discipline.			
16	Cochrane.....	Cadet.....	403	78	51	.....	48	121	701	12	
15	Davis, F.....	do.....	374	47	.....	.....	47	129	597	15	
11	Davis, W.....	do.....	582	49	76	55	59	130	951	8	Honorable mention—French.
12	Dennison.....	do.....	366	55	.....	65	47	129	662	14	
4	Des Brisay.....	Lance Corporal..	567	83	64	42	47	162	965	5	
17	Dixon.....	Cadet.....	460	47	.....	.....	48	137	692	13	
	Fairbank.....	do.....	540	77	.....	.....	59	150	836	10	
2	Freer.....	Lance Corporal..	581	54	77	52	48	144	956	7	Honorable mention—French. Prize—Geometrical drawing.
14	Irving.....	Corporal.....	.....	94	71	82	59	162	468	16	Honorable mention—Conduct and discipline. Honorable mention—Geometrical drawing.
3	Keefe.....	Lance Corporal..	575	91	73	75	60	156	1,030	2	Honorable mention—German. Honorable mention—Conduct and discipline.
6	McPherson.....	Cadet.....	622	86	59	.....	60	147	974	4	Honorable mention—Mathematics.
18	Perley.....	do.....	.....	67	.....	.....	60	148	275	18	
13	Perry.....	do.....	656	79	57	.....	60	147	999	3	Prize—Mathematics.
10	Reed.....	do.....	.....	21	69	69	47	125	331	17	
7	Rivers.....	do.....	469	75	.....	.....	48	142	734	11	

8	Spelman..... do	648	64	.....	60	133	905	9	Honorable mention—Mathematics.
5	Wise.....	540	92	79	60	119	963	6	{ Honorable mention — Geometrical drawing. Prize—French. Class prize.
1	Wurtele Lance Corporal..	618	85	74	59	163	1,076	1	{ Honorable mention—German. Honorable mention—Conduct and discipline.

E. O. HEWETT Lieut.-Colonel, R. E.,
Commandant, Military College.

KINGSTON, 27th January,

APPENDIX (C) TO HALF-YEARLY

Examination Return, Eighth Class.—Combined

Order in Class before Examination.	NAMES IN ALPHABETICAL ORDER.	OBLIGATORY.													Totals.		
		A	A	A	A	A	Modern Lan- guages.	Experimental and Physical Sciences.	Freehand Drawing and Painting	A				(a) Obtained.	(b) Allowed to count.		
		Mathematics.	Geometrical Drawing and Fortification.	Artillery.	Military History, Strategy and Tactics, and Admin- istration and Law.	Military Topography and Surveying.	Either Lan- guage.	Any one of these Sciences		Drills and Exercises.	Conduct and Discipline.						
		French.	German.	Chemistry.	Electricity.	Geology.	Drills.	Gymnastics.	Equitation.	Swimming.							
	Maximum allotted.....	700	100				100					50		10	150	1110	1110
	Minimum allowed to count.....	350	20				50					25		5	75		525
16	Cochrane, Cadet..	a Ob. 403	78				51					38		10	121	701	701
		b Cd. 403	78				51					38		10	121		701
15	Davis, F. "	a Ob. 374	47				14					38		9	129	611	597
		b Cd. 374	47									38		9	129		597
11	Davis, W. "	a Ob. 582	49				76					50		9	130	896	896
		b Cd. 582	49				76					50		9	130		896
12	Denison, "	a Ob. 366	55				39					38		9	129	636	597
		b Cd. 366	55									38		9	129		597
4	DesBrisay, L.-Cpl.	a Ob. 567	83				64					38		9	150	911	911
		b Cd. 567	83				64					38		9	150		911
17	Dixon, Cadet..	a Ob. 460	47				19					38		10	137	711	692
		b Cd. 460	47									38		10	137		692
9	Fairbank, "	a Ob. 540	77				43					50		9	150	869	826
		b Cd. 540	77									50		9	150		826
2	Freer, L.-Cpl.....	a Ob. 581	54				77					38		10	134	894	894
		b Cd. 581	54				77					38		10	134		894
14	Irving, Corporal..	a Ob. 298	94				71					50		9	143	665	367
		b Cd.	94				71					50		9	143		367
3	Keefer, L.-Cpl.....	a Ob. 575	91				73					50		10	143	942	942
		b Cd. 575	91				73					50		10	143		942
6	McPherson, Cadet	a Ob. 622	86				59					50		10	147	974	974
		b Cd. 622	86				59					50		10	147		974
18	Perley, "	a Ob. 106	67				8					50		10	148	389	276
		b Cd.	67									50		10	148		276

REPORT, MILITARY COLLEGE.

Subjects.—Date of Examination, January, 1877.

VOLUNTARY.											OBLIGATORY & VOLUNTARY.		REMARKS.			
Mathematics.	Geometrical Drawings and Fortification.	Artillery.	Military History, Strategy and Tactics, and Administration and Law.	Military Topography and Surveying.	Modern Languages.		Experimental and Physical Sciences.			Total.	Grand Total.					
					French.	German.	Chemistry.	Electricity.	Geology.		(a) Obtained.	(b) Allowed to count.		(a) Obtained.	(b) Allowed to count.	
						100				25	125	125	1235	1235	Qualified or not Qualified. — If not Qualified, Subjects to be specified.	
						33										
													701	701		Qualified.
													611	597		Qualified.
						55					55	55	951	951		Qualified. Hon. men.
						65					65	65	701	682		'French.'
						65							65	662		Qualified.
						42				12	54	65	965	965		Qualified.
						42				12	54	65	965	965		Qualified.
													711	692		Qualified.
													869	826		Qualified.
						52				10	62	62	956	956		Qualified. Hon. men.
						52				10	62	62	956	956		'French.'
										19	101	101	786	468		Not qualified, 'Mathematics.'
						82				19	101	101	786	468		Prize, 'Geometrical Drawing.'
						82				19	101	101	786	468		Prize, 'German.'
																Hon. men. 'Conduct and Discipline.'
																Not qualified, 'Aggregate Obligatory Subjects.'
						75				13	88	88	1030	1030	Hon. men. 'Geometrical Drawing.'	
						75				13	88	88	1030	1030	'German,' & 'Conduct & Discipline.'	
															Qualified.	
													974	974	Qualified. Hon. men.	
															'Mathematics.'	
													389	275	Not qualified, 'Mathematics' and 'Aggregate Obligatory Subjects.'	

APPENDIX (C) to Half-Yearly

Order in Class before Examination.	NAMES IN ALPHABETICAL ORDER.	OBLIGATORY.													Total.	
		A	A	A	A	Modern Lan- guages.	Experimental and Physical Sciences.	A			Conduct and Discipline.	(a) Obtained.	(b) Allowed to count.			
		Mathematics.	Drawing and Fortification.	Artillery.	Military History, Strategy and Tactics, and Administration and Law.	Military Topography and Surveying.	Either Lan- guages.	Any one of these Sciences	Freehand Drawing and Painting	Drills and Exercises.						
		French.	German.	Chemistry.	Electricity.	Geology.	Drills.	Gymnastics.	Equitation.	Swimming.						
13	Perry, Cadet..	{ a Ob. 656	79	.....	.....	57	.....	.....	.....	50	.....	10	147	999	.....
		{ b Cd. 656	79	.....	.....	57	.....	.....	.....	50	.....	10	147	999	.....
10	Reed, " ..	{ a Ob. 314	40	.....	.....	69	.....	.....	.....	38	.....	9	125	595	.....
		{ b Cd.	21	.....	.....	69	.....	.....	.....	38	.....	9	125	595	262
7	Rivers, " ..	{ a Ob. 469	75	.....	.....	36	.....	.....	.....	38	.....	10	142	770	.....
		{ b Cd. 469	75	.....	.....	36	.....	.....	.....	38	.....	10	142	770	734
8	Spelman, " ..	{ a Ob. 648	64	.....	.....	38	.....	.....	.....	50	.....	10	133	943	.....
		{ b Cd. 648	64	.....	.....	38	.....	.....	.....	50	.....	10	133	943	905
5	Wise, " ..	{ a Ob. 540	92	.....	.....	79	.....	.....	.....	50	.....	10	119	890	.....
		{ b Cd. 540	92	.....	.....	79	.....	.....	.....	50	.....	10	119	890	890
1	Wurtele, L.-Cpl..	{ a Ob. 618	85	.....	.....	74	.....	.....	.....	50	.....	9	150	986	.....
		{ b Cd. 618	85	.....	.....	74	.....	.....	.....	50	.....	9	150	986	986

NOTE.—1. Marks obtained (a).

Marks allowed to count (b).

2. A Cadet must obtain one-half the number of marks allotted to the obligatory subjects marked A, and also one-half the aggregate of the marks assigned to all the obligatory subjects, in order to be allowed to count, or to qualify.

(*) Any marks for plates.

J. BRAMLEY RIDOUT, Capt. 90th L.I.,
Captain of Cadets.

KINGSTON, 25th January, 1877.

Report, Military College.—Continued.

VOLUNTARY.													OBLIGATORY & VOLUNTARY.		REMARKS.			
Mathematics.	Geometrical Drawing and Fortification.	Artillery.	Military History, Strategy and Tactics, and Administration and Law.	Military Topography and Surveying.	Modern Languages.		Experimental and Physical Sciences.			Freehand Drawing and Painting	Civil Engineering.	Discipline, N.-C. Officers only eligible.	Total.			Grand Total.		
					French.	German.	Chemistry.	Electricity.	Geology.				(a) Obtained.	(b) Allowed to count.	(a) Obtained.	(b) Allowed to count.		
																		Qualified or not Qualified.
															999			Qualified.
																999	3		Prize 'Mathematics.'
																		Not qualified, 'Mathematics,' 'Geometrical Drawing,' & 'Aggregate Obligatory Subjects.'
						69							69			664			Qualified.
						69							69			331	17	Hon. men. 'Mathematics.'
																770			Qualified.
																734	11	Hon. men. 'Mathematics.'
																943			Qualified.
																905	9	Hon. men. 'Geometrical Drawing,' Prize, 'French'
																		Qualified.
						73							73			963			Hon. men. 'Mathematics.'
						73							73			963	6	Hon. men. 'Geometrical Drawing,' Prize, 'French'
																		Qualified.
						77							13	90		1076			Hon. men. 'Mathematics.'
						77							13	90		1076	1	Hon. men. 'Geometrical Drawing,' Prize, 'French'

E. O. HEWETT, Lt.-Colonel, R.E.,
Commandant, Military College.

KINGSTON, 25th January, 1877.

APPENDIX No. 6.

GUNNERY CERTIFICATES.

PROVINCE OF ONTARIO.

LIST of the names of Officers, Non-Commissioned Officers and others of the Active Militia, who have obtained Certificates at "A" Battery, School of Gunnery, Kingston, during the Year 1876.

Rank and Name.	Corps.	Certificates.		Long or Short Course.
		1st Class.	2nd Class.	
		1876.	1876.	
Adams, Gunner Geo	Kingston Field Battery	Oct. 7	.....	Short.
Allan, Sergeant Wm.....	Hamilton do	April 11	.....	do
Anderson, Corporal F.....	New Brunswick Brigade Garrison Artillery.....	.....	April 11	do
Barron, Bombardier W	Toronto Field Battery.....	.....	Dec. 30	do
Beasley, Gunner J. F.....	"A" Battery.....	Mar. 9	.....	do
Beers, Gunner J	Toronto Garrison Battery.....	April 11	.....	do
Benson, Sergeant T.....	Durham Field Battery.....	.....	Mar. 6	do
Boddle, Gunner R	Wellington Field Battery .....	.....	Jan. 22	do
Blaney, Gunner G. H.....	do do .....	.....	do 22	do
Bridgeford, Gunner J.....	do do	Mar. 6	.....	do
Bruce, Sergeant W. C.....	Hamilton do .....	.....	April 9	do
Coleman, Gunner S.....	Toronto do .....	.....	Oct. 7	do
Cruise, Bombardier W	do do	May 13	.....	do
Davies, Gunner T.....	do do .....	.....	Sept. 6	do
Davidson, Gunner Wm	St. Catherine's Garrison Battery	April 11	.....	do
Dunlop, Sergeant J.....	New Brunswick Brigade Garrison Artillery.....	Mar. 6	Jan. 22	do
Dunlop, Bombardier S.....	Ottawa Field Battery.....	.....	Nov. 23	do
Echardt, Gunner W.....	St. Catherine's Garrison Battery .....	.....	Jan. 22	do
Fox, Gunner W.....	Cobourg, Garrison Battery.....	.....	do 22	do
Galbraith, Sergeant F.....	Durham Field Battery.....	April 11	.....	do
Hall, Gunner A.....	Kingston Field battery.....	.....	Nov. 23	do
Hartnett, Gunner T.....	Wellington do .....	.....	Mar. 6	do
Hawthorne, Gunner G.....	Ottawa Brigade Garrison Artillery .....	.....	Jan. 22	do
Hope, Gunner James.....	Kingston Field Battery .....	.....	Nov. 23	do
Hutchins, Gunner James.....	do do	Mar. 6	.....	do
Kennedy, Sergt.-Maj. J. H.....	Winnipeg do	Jan. 22	.....	do
Kennedy, Gunner J.....	Hamilton do .....	.....	Nov. 23	do
Lanagan, Sergeant C. F.....	New Brunswick Brigade Garrison Artillery.....	Jan. 22	.....	do
Langman, Gunner H.....	"A" Battery.....	.....	May 13	do
Moore, Major Allen H.....	13th Battalion, Active Militia	Sept. 6	.....	do
Morley, Sergeant Nelson	Welland Canal Field Battery	Jan. 22	.....	do
Munroe, Actg. Bombr. J.....	"A" Battery	do 22	.....	do

PROVINCE OF ONTARIO.

LIST of Candidates for Commissions, &c.—Continued.

Rank and Name.	Corps.	Certificates.		Long or Short Course.
		1st Class.	2nd Class.	
		1876.	1876.	
McGaw, Bombardier E	New Brunswick Brigade Garrison Artillery		April 11	Short.
McIntyre, Bombardier W.....	Collingwood Garrison Battery.....		May 13	do
McLeod, Gunner M.....	Kingston Field Battery.....	Jan. 22		do
McNaughton, Sergeant D. G..	New Brunswick Brigade Garrison Artillery ...	do 22		do
Newman, Gunner C.....	Toronto Field Battery		Oct. 7	do
O'Brien, Gunner Patrick.....	"A" Battery.....	Mar. 6		do
O'Donnell, Gunner C	St. Catharine's Garrison Battery..		May 13	do
Percy, Corporal W.....	Ottawa Field Battery	Mar. 6		do
Pettigrew, Corporal S.....	Toronto do	Oct. 7		do
Raines, Gunner Isaac ..	do do	Jan. 22		do
Roberts, Corporal E. W	New Brunswick Brigade Garrison Artillery ...		April 11	do
Scheuermann, Gunner John..	Welland Canal Field Battery.....		Dec. 30	do
Schofield, Gunner C.....	"A" Battery.....		Mar. 6	do
Stewart, Sergeant John	Goderich Garrison Artillery.....		May 13	do
Stobart, Gunner E. H.....	Wellington Field Battery ..		Mar. 6	do
Stobart, Bombardier E. H.....	Toronto do	May 13		do
Tolton, Gunner W.....	Hamilton do	Jan 22		do
Underhill, Major J. D	New Brunswick Brigade Garrison Artillery ...	Mar. 9		do
Walton, Gunner R.....	Kingston Field Battery.....		April 11	do
Williams, Gunner John	St. Catharine's Garrison Battery.....		May 13	do
Workman, Gunner J.....	Durham Field Battery.....		Mar. 6	do

RECAPITULATION.

First Class Certificates (Long Course).....	24
do do (Short Course)	28
Second do do	28
Total	52

RESUME.
PROVINCE OF ONTARIO.

REGIMENTAL DIVISION.	ACTIVE MILITIA.	
	First Class Certificates.	Second Class Certificates.
Officers of the Active Militia Artillery, and Candidates for Commissions therein, who have obtained Certificates at the Schools of Gunnery, in the Province of Ontario, since their first opening.		
Addington (<i>vide</i> Lennox).....		
Bothwell.....		
Brant.....		
Brockville (<i>vide</i> Leeds).....	1	
Bruce.....		
Cardwell.....		
Carleton and City of Ottawa.....	14	9
Dundas.....	8	4
Durham.....	5	3
Elgin.....		
Essex.....	4	1
Frontenac and City of Kingston.....	31	18
Glengarry.....	1	
Grenville.....		
Grey.....		1
Haldimand.....	1	
Halton.....	1	
Hamilton, City of (<i>vide</i> Wentworth).....		
Hastings.....	16	3
Huron.....	5	3
Kent.....		
Kingston, City of (<i>vide</i> Frontenac).....		
Lambton.....	5	2
Lanark.....	3	
Leeds and Brockville.....	7	2
Lennox and Addington.....	8	3
Lincoln.....	11	5
London (<i>vide</i> Middlesex).....		
Middlesex and London.....	6	3
Niagara.....	1	
Norfolk.....		
Northumberland.....	8	2
Ontario.....	2	
Ottawa, City of (<i>vide</i> Carleton).....		
Oxford.....		1
Peel.....	1	
Perth.....	2	
Peterborough.....	1	
Prescott and Russell.....	1	
Prince Edward.....		
Renfrew.....		
Russell (<i>vide</i> Prescott).....		
Simcoe.....	9	5
Stormont.....		
Toronto, City of (<i>vide</i> York).....		
Victoria.....		
Waterloo.....		
Welland.....	5	7
Wellington.....	8	13
Wentworth and City of Hamilton.....	8	3
York and City of Toronto.....	91	23
Town of Winnipeg, Manitoba.....	2	1
St. John, N.B.....	5	4
Grand Total.....	272	114

PROVINCE OF QUEBEC.

LIST of Names of Officers, Non-Commissioned Officers and others, in the Active Militia, who have obtained Certificates at "B" Battery, School of Gunnery, Quebec, during the year 1876.

Rank and Name.	Corps.	Certificates.		Long or Short Course.
		1st Class.	2nd Class.	
		1876.	1876.	
Baugh, Gunner George.....	" B " Battery.....		Dec. 4	Short.
Billman, Gunner Thomas ...	do		Sept. 20	do
Burns, Gunner James.....	do		do 20	do
Chamberlain, Gunner W. W.	do		do 20	do
Courtney, Gunner George....	do		Dec. 4	do
Craig, Gunner James.....	do		do 4	do
Croteau, Gunner Maurice....	do		do 4	do
D'Allaire, Sergeant André....	Quebec Field Battery.....		April 6	do
DeMulder, Gunner A.....	" B " Battery.....		Sept. 20	do
Dennison, Corporal W.....	Digby, Nova Scotia, Garrison Battery.....		Aug. 4	do
Donnelly, Gunner John.....	" B " Battery.....		April 24	do
Duffy, Gunner J	Newcastle Field Battery.....		Dec. 29	do
Girel, Gunner F.....	" B " Battery.....		Sept. 20	do
Hammon, Acting Bom. O	do		do 20	do
Harris, Gunner Sidney.....	do		do 20	do
Hay, Sergeant Andrew.....	Chatham New Brunswick Garrison Artillery.....		April.	do
Holland, Acting Bom. Thos....	" B " Battery.....		Sept. 20	do
Irving, Lieutenant James.....	Charlottetown Garrison Artillery.....		Feb.	do
Jackson, Sergeant E. L.....	Woodstock New Brunswick Field Battery.....		Sept. 29	do
Kennedy, Gunner Martin.....	" B " Battery.....		April 24	do
Leray, Sergeant A.....	Quebec Field Battery.....		Dec. 29	do
Mason, Gunner Wm.....	do		April 24	do
Matheson, Gunner J.....	Newcastle Field Battery.....		Dec. 29	do
May, Corporal Mathew.....	Chatham New Brunswick Garrison Artillery.....		April.	do
Molson, Lieutenant J. A.	Montreal Garrison Artillery.....		Sept. 16	do
Morrice, Gunner C.....	do		April 24	do
McCartney, Bombardier.....	" B " Battery.....		do 24	do
Nelan, Gunner Michael.....	do		do 24	do
O'Neill, Gunner J. D.....	do		do 24	do
Preston, Gunner E	Newcastle Field Battery		Dec. 29	do
Rackley, Acting Bom. J. H....	" B " Battery.....		Sept. 20	do
Rouleau, Gunner C.E.....	do		Dec. 4	do
Ruthven, Gunner John.....	do		do 4	do
Stevens, Bombardier George..	do		April 24	do
Stock, Gunner Edward	do		Nov.	do
Swanson, Gunner John.....	do		April 24	do

PROVINCE OF QUEBEC.

LIST of Candidates for Commissions, &c.—*Concluded.*

Rank and Name.	Corps.	Certificates.		Long or Short Course.
		1st Class.	2nd Class.	
		1876.	1876.	
Vince, Major D. McLeod.....	67th Regiment Light Infantry.....	Sept. 20	.....	Short.
Walmsley, Gunner David.....	" B " Battery.....	.....	April 24	do
Waters Corporal.....	Digby, Nova Scotia, Garrison Artillery.....	.....	Aug. 4	do
Weldon, Bom. Frederick.....	Newcastle Field Battery.....	.....	Sept. 29	do
Wheelock, Gunner J.H.....	Quebec Field Battery.....	.....	April 24	do
Williams, Bombardier L. J.....	do do.....	.....	do 24	do

The following obtained Cavalry and Infantry Certificates:—

<i>Cavalry.</i>				
Gray, Major F. Wood.....	Quebec Squadron.....	Nov. 29	.....	Short.
<i>Infantry.</i>				
Brunet, Capt. Z.....	Portneuf Provisional Battalion.....	Sept. 27	.....	do
Pacquette, Capt. J. A.....	do do.....	Nov. 18	.....	do
Taché, Lieut. E. J.....	Kamouraska Provisional Battalion.....	do 18	.....	do

RECAPITULATION.

First Class Certificates (Long Course).....	0
do do (Short Course).....	5
Second do (do).....	41
Total.....	46

RESUME.
PROVINCE OF QUEBEC.

REGIMENTAL DIVISIONS.	ACTIVE MILITIA.	
	First Class Certificates.	Second Class Certificates.
Officers of the Active Militia Artillery, and Candidates for Commissions therein, who have obtained Certificates at the Schools of Gunnery, in the Province of Quebec since their first opening.		
Argenteuil and Two Mountains.....		
Arthabaska and Drummond.....		
Assomption and Montcalm.....		
Bagot.....		
Beauce.....	5	6
Beauharnois and Laprairie.....	1	
Bellechasse and Dorchester.....		
Berthier.....		
Bonaventure.....		
Brome and Stanstead.....		
Chambly and Verchères.....		
Champlain.....		
Charlevoix and Montmorency.....		
Chateauguay.....	1	
Chicoutimi and Saguenay.....		
Compton and Sherbrooke.....	1	3
Gaspé.....	1	3
Hochelega and City of Montreal.....	29	66
Huntingdon.....	2	
Iberville.....		
Jacques Cartier and Laval.....	2	
Joliette.....		
Kamouraska.....		
Lévis.....		
L'Islet and Montmagny.....		
Lotbinière.....		
Maskinongé and St. Maurice.....		
Megantic.....	1	
Missisquoi.....		
Napierville and St. Johns.....	3	
Nicolet and Yamaska.....		
Ottawa and Pontiac.....	2	
Portneuf.....		
Quebec, City of.....	13	129
Richelieu.....	1	
Richmond and Wolfe.....	2	
Rimouski.....		
Rouville.....		
St. Hyacinthe.....	2	
Shefford.....	2	15
Soulanges and Vaudreuil.....	1	
Temiscouata.....		
Terrebonne.....	1	
Victoria, Province of British Columbia.....	1	
Carleton, Province of Nova Scotia.....	1	1
Digby, do do.....		2
Halifax City, do do.....	1	
Northumberland, Province of New Brunswick.....		6
Queen's, Province of Prince Edward Island.....		1
Total.....	73	232
Quebec City, Cavalry Certificate.....	1	
Kamouraska, Infantry do.....	1	
Portneuf, do do.....	2	
Grand Total.....	77	232

APPENDIX No 7.

MILITARY SCHOOL CERTIFICATES.

PROVINCE OF NEW BRUNSWICK.

LIST of Officers and Non-Commissioned Officers in the Active Militia, and Candidates for Commissions therein at the School of Military Instruction during the year, 1876.

Rank and Name.	First Class Certificate and date.	Second Class Certificate and Date.	Regimental Division.
	1876.	1876.	
Alexander, Sergt. John, 71st Battalion.....	8th Feb. ...	Sunbury.	
Alexander, William E.....	2nd March...	do	
Alexander, Thomas.....	4th do	do	
Armstrong, John B.....	2nd do ...	Charlotte.	
Atkinson, Ensign, Wm. F., 67th Battalion.....	15th do	Carleton.	
Atkinson, Sergeant W. W., do	15th do ...	do	
Baird, Charles W., 74th Battalion.....	15th April...	King's.	
Barrett, Edward C., 67 Battalion.....	7th do ...	Carleton.	
Biggar, George.....	18th March...	Northumberland	
Blain, Alexander, 62nd Battalion.....	26th April...	St. John.	
Boyce, Calvin, 71st Battalion.....	15th March...	York.	
Brown, James, Sergeant-Major, New Brunswick Garrison Artillery.....	27th April...	St. John.	
Buchanan, James, Sergeant, 62nd Battalion.....	26th do ...	do	
Burpee, George F, 67th Battalion.....	18th March...	Carleton.	
Burpee, Charles, Captain, 67th Battalion.....	30th do ...	do	
Burton, William R, do	7th April...	do	
Caldwell, John.....	7th do ...	Queen's County.	
Cameron, Allan, Sergeant, 73rd Battalion.....	2nd Feb.....	Northumberland	
Cameron, Hugh, Captain, do	18th March...	do	
Carmichael, David L., Sergeant, New Brunswick Engineers.....	18th May.....	St. John.	
Christy, Elbridge, 71st Battalion.....	5th April.....	York.	
Connolly, David, Sergeant, 62nd Battalion.....	18th May.....	St. John.	
Coster, George, do	27th April...	do	
Courtenay, John T., do	26th do ...	do	
Oulins, Jeremiah H., 71st Battalion.....	8th Feb.....	York.	
Currie, Horace T. do	15th March...	do	
Daniels, F. W., 62nd Battalion.....	17th May.....	St. John.	
Davis, Richard.....	17th Feb.....	York.	
Dollard, John, 62nd Battaliou.....	17th May.....	St. John.	
Edwards, Matthew B., 62nd Battalion.....	26th April...	St. John.	
Estey, J. Hats, 71st Battalion.....	15th March...	York.	
Fitzrandolph, Allan H., 71st Battalion.....	17th May.....	York.	
Garden, Julius F., 67th Battalion.....	15th April...	Carleton.	
Grimmer, W. E. Hazen.....	23rd March...	Charlotte.	

PROVINCE OF NEW BRUNSWICK.

LIST of Candidates for Commissions, &c.—*Concluded.*

Rank and Name.	First Class	Second	Regimental
	Certificate	Class Cer-	
	and date.	tificate and	Division.
		Date.	
	1876,	1876.	
Haley, John.....		15th April...	King's.
Hart, J., Twining, New Brunswick Engineers.....		27th do ...	St. John.
Howland, Benjamin.....		8th Feb.....	York.
Hoyt, Silas F., 67th Battalion.....		8th do	Carleton.
Kickham, Thomas, 62nd Battalion.....		26th April...	St. John.
Libby, Charles F.....		17th Feb.....	York.
Lindsay, William, Sergeant, 62nd Battalion.....		18th May.....	St. John.
Long, Charles A., 67th Battalion.....		15th April...	Carleton.
Magee, William C., Ensign, 62nd Battalion.....		26th April...	St. John.
Milledge, James W. do		2nd Feb.....	do
Mitchell, William A., 71st Battalion.....		30th March...	York.
Mitchell, William do		30th do	do
McDonald, Norman.....		17th Feb.....	do
McKenzie, John T.....		2nd March...	Kings County.
McKenzie, Lewis J.....		2nd do	Charlotte.
McKinlay, John.....		17th Feb.....	York.
O'Brien, Dennis, 71st Battalion.....		30th March...	do
Peel, William B., 62nd Battalion.....		17th May.....	St. John.
Peppers, Robert.....		17th Feb.....	York.
Phillips, Matthew L., 67th Battalion.....		15th April...	Carleton.
Rand, Stephen, 62nd Battalion.....		27th April...	St. John.
Risteen, Frank N., 71st Battalion.....		5th do ...	York.
Rosborough, William.....		2nd March...	do
Scovil, William G., Sergeant, 8th Regiment Cavalry		30th do ...	Kings.
Scovil, John, 71st Battalion.....		5th April...	York.
Sharp, Moses do		2nd Feb.....	do
Smith, William D. do		5th April...	Sunbury.
Stephens, John do		17th May.....	York.
Thompson, George F., New Brunswick Engineers.....		28th April...	St. John.
Watson, James, jun., Mr., Sergeant 67th Battalion.....		7th do ...	Carleton.
Wilkinson, Charles G. S.....		17th May.....	York.
Wood, Lambert, Sergeant, 71st Battalion.....		15th March...	do
Wood, John do		4th do	do

RECAPITULATION.

First Class Certificates	0
Second do	67
Total	67

RESUMÉ.

PROVINCE OF NEW BRUNSWICK.

REGIMENTAL DIVISIONS.	ACTIVE MILITIA.		Number of Ca- dets attending the Schools of Military In- struction, on the 1st of Jan., 1877.
	Officers and N. C. O. in the Active Militia, and Candidates for Com- missions therein, who have ob- tained Certificates at the Schools of Military Instruction, since their first opening.		
	1st Class Certificates.	2nd Class Certificates.	
Albert		3	
Carleton.....	3	54	
Charlotte		11	
Gloucester.....		3	
Kent		5	
Kings		42	
Northumberland.....		6	
Queen's.....		9	
Restigouche		2	
St. John (first, second and third)	9	138	
Sunbury.....		14	
Victoria.....		3	
Westmoreland		13	
York.....	4	184	
Grand Total.....	15	487	

PROVINCE OF NOVA SCOTIA.

LIST of Officers and Non-Commissioned Officers in the Active Militia, and Candidates for Commissions therein, who have obtained Certificates at the School of Military Instruction, during the Year 1876.

RANK AND NAME.	First Class Certificate and Date.	Second Class Certificate and Date.	Regimental Division.
	1876.	1876.	
Archibald, George H., Private, 63rd Battalion.....		May 4.....	Halifax City
Billman, James, Private, 66th Battalion.....		May 23.....	do
Billman, Thomas, 66th Battalion.....		April 10.....	do
Bishop, W., Ensign, 63rd Battalion.....		March 21.....	do
Black, G. Howard, Corporal, Cumberland, Provisional Bat.		April 10	Cumberland.
Bowes, Wm., Gunner, 1st Halifax Brigade, Garrison Artill'y		May 12.....	Halifax City.
Cameron, Charles S.....		May 23.....	Victoria.
Carter, G. C., Sergeant, Cumberland Provisional Battalion		April 10.....	Cumberland.
Carter, Job, Sergeant, 66th Battalion.....		May 23.....	Halifax County.
Cassidy, P. J., Private, 63rd Battalion.....		do 12.....	Halifax City.
Charlton, J. H., Sergeant Major, 69th Battalion.....	May 2.....	March 21.....	Annapolis.
Clay, H. P., Lieut., 2nd Halifax Brigade, Garrison Artill'y		April 10.....	Halifax City.
Connors, James, Sergeant, 63rd Battalion.....		May 2.....	do
Corbin, W. E., B.S. Major, 1st Halifax Brigade Gar. Artill'y	May 23.....	April 10.....	do
Cornwall, Charles B., Sergeant, 69th Battalion.....	do 2.....	March 21.....	Annapolis.
Crisp, Fred, Gunner, 1st Halifax Brigade, Garrison Artill'y		May 12.....	Halifax City.
Dewar, H. G., Private, 63rd Battalion		May 23.....	do
De Wolfe, C. E., Corporal, 63rd Battalion.....		April 10.....	do
Egan, J. T., Ensign, 63rd Battalion.....	May 23.....	March 21.....	Halifax City.
Elliot, L. W., Ensign, 69th Battalion.....		May 29.....	Annapolis.
Fortune, James, Private, 63rd Battalion		April 10.....	Halifax City.
Fraser, Donald, Sergeant, 68th Battalion.....		March 21.....	do
Givens, John, Gunner, 1st Halifax Brigade Garrison Artill'y		May 12.....	do
Gough, Richard, Sergeant, 63rd Battalion.....		do 4.....	do
Graham, John, Gunner, 2nd Halifax Brigade Garrison Ar'y		do 2.....	do
Graham, George, Private, 66th Battalion		do 23.....	do
Harrison, O. L., Bugler, Cumberland Provisional Battalion		April 10.....	Cumberland.
Healey, Philip G., Private, 63rd Battalion.....		May 31.....	Halifax City.
Hickey, John P., Private, 63rd Battalion.....		do 2.....	do
Hills, John E., Gunner, 1st Halifax Brigade Garrison Artill'y		do 4.....	do
Holder, Henry A., Gunner, 1st Halifax Brigade Gar. Artill'y		do 12.....	do
Horneman, Frederick, Private, 66th Battalion.....		do 31.....	do
Howard, John, Ensign, 68th Battalion.....		April 10.....	do
Kaizer, A. F., Private, 63rd Battalion.....		May 31.....	do
Lambert, Thomas, Private, 66th Battalion.....		April 10.....	do
Locke, Reuben, B.S.M., 2nd Halifax Brigade Garrison Artill'y		May 12.....	do
Lockhart, Archibald, Private, 63rd Battalion.....	May 23.....	March 21.....	do
Lomas, John, B.S.M., 1st Halifax Brigade Garrison Artill'y.		do 21.....	do

PROVINCE OF NOVA SCOTIA.

LIST of Candidates for Commissions, &c.—*Concluded.*

RANK AND NAME.	First Class Certificate and Date.	Second Class Certificate and Date.	Regimental Division.
	1876.	1876.	
Macintosh, George H., Private, 63rd Battalion	May 23.....	do 23.....	do
Mahoney, John, Gunner, 1st Halifax Brigade Garrison Art'y	do 4.....	do 4.....	do
Menger, John, Private, 63rd Battalion	do 23.....	do 23.....	do
McKinnon, Alexander, Private, Victoria Provisional Batt.....	do 23.....	do 23.....	Cape Breton.
McNeil, E. F., Sergeant Major, 68th Battalion.....	May 23.....	do 23.....	Kings County.
McPhaile, Hugh, Sergeant, 63rd Battalion.....	May 31.....	May 31.....	Halifax City.
Palmer, Ed., Gunner, 1st Halifax Brigade Garrison Artily.....	May 4.....	May 4.....	do
Payne, William, Private, 63rd Battalion.....	do 31.....	do 31.....	do
Ridgeway, Lewis, Gunner, Halifax Field Battery.....	May 4.....	May 4.....	do
Sanford, Harding B., Private, 63rd Battalion	May 23.....	May 23.....	do
Silverthorne, David, Gunner, 1st Halifax Brigade Gar. A.....	do 23.....	do 23.....	do
Vaughan, James F., Corporal, 63rd Battalion.....	May 2.....	May 2.....	do

RECAPITULATION.

First Class Certificates.....	6
Second do	49
Total.....	<u>55</u>

RESUMÉ.

PROVINCE OF NOVA SCOTIA.

REGIMENTAL DIVISIONS.	ACTIVE MILITIA.		Number of Cadets attending the Schools of Military Instruction on the 1st of Jan., 1876.
	Officers and Non-Commissioned Officers in the Active Militia, and Candidates for Commissions therein, who have obtained Certificates at the Schools of Military Instruction since first opening.	First Class Certificate.	
Annapolis	4	43	
Antigonish			
Cape Breton	1	5	
Colchester		10	
Cumberland	1	12	
Digby		3	
Guysboro'		6	
Halifax City	27	231	
Halifax County	1	32	
Hants		2	
Inverness		4	
Kings	1	8	
Lunenburg	2	10	
Pictou		23	
Queens		2	
Richmond			
Shelburne		14	
Victoria			
Yarmouth			
Ottawa City, Ontario	1		
Grand Total	38	405	

APPENDIX No. 8.

CERTIFICATES, BOARDS OF EXAMINERS.

LIST of Officers of the Active Militia, and of Candidates for Commissions therein, who have obtained Certificates from Boards of Examiners, during the year 1876.

Rank and Name.	First Class Certificates and Date.	Second Class Certificates and Date.
PROVINCE OF ONTARIO.		
	1876.	1876.
Armstrong, Adam, Ensign, 26th Battalion		2nd March.
Bethune, Norman, Captain, 2nd Battalion, Queen's Own		7th April.
Bryant, John C., Lieutenant, 34th Battalion		7th April.
Buchan, Lawrence, Captain, 2nd Battalion, Queen's Own	7th April.	
Cleverdon, Thomas, Sergeant, 34th Battalion		7th April.
Cockburn, John, Lieutenant, 38th Battalion		7th April.
Cook, Christopher, Lieutenant, 35th Battalion		7th April.
Dixon, John R., Captain, 7th Battalion	20th May.	
Dunn, H. C., Sergeant, 34th Battalion		16th May.
Elliot, William R., Ensign, 7th Battalion		20th May.
Evans, George T., Ensign, 36th Battalion		7th April.
Griffin, Henry Wilmot, Ensign, Governor General's Foot Guards		26th May.
Hartley, Gilbert, Corporal, 13th Battalion		7th April.
Hunt, Charles B., Ensign, 7th Battalion		20th May.
Johnson, George S., Ensign, 26th Battalion		2nd March.
Mahon, James A., Lieutenant, 7th Battalion		20th May.
Mead, Joseph H., Ensign, 10th Battalion, Royals	7th April.	
Mercer, Richard, Sergeant, 34th Battalion		7th April.
Musson, William, Captain, 37th Battalion		7th April.
McGill, S. G., Lieutenant, 34th Battalion		7th April.
MacMillan, John, Captain, 25th Battalion	12th April.	
Nelles, R. L., Captain, 37th Battalion		7th April.
O'Brien, Thomas, Captain, 7th Battalion	20th May.	
Patterson, Norman F., Captain, 34th Battalion	7th April.	
Pattullo, George R., Captain, 38th Battalion	8th May.	
Phipps, William Arthur, Lieutenant, 10th Battalion	7th April.	
Rankin, William R., Ensign, 35th Battalion		7th April.
Rolph, Thomas Taylor, Captain, 10th Battalion	7th April.	
Smith, John J., Captain, 34th Battalion	7th April.	
Stuart, John J., Sergeant		16th May.
Toller, Frederick, Ensign, Governor General's Foot Guards		26th May.
Wastie, Thomas, Ensign, 7th Battalion		20th May.

LIST of Officers of the Active Militia, &c.—Continued.

Rank and Name.	First Class Certificate and Date.	Second Class Certificate and Date.
PROVINCE OF QUEBEC.		
	1876.	1876.
Allen, John, Ensign, 52nd Battalion.....		11th April.
Anderson, Alexander, Ensign, 3rd Battalion.....		15th May.
Crawford, J. D., Lieut.-Col., commanding 5th Battalion.....	20th May.....	
Doherty, Henry J., Major, Commanding St. Hyacinthe Provisional Battalion.....	13th May.....	
Geddes, Charles G., Captain, 5th Battalion.....		15th May.
Grant, John G., Lieutenant, do.....		15th do
Grindrod, Adam L., Ensign, 53rd Battalion.....		25th October.
Hunt, Arthur F., Ensign, 8th Battalion.....		20th May.
Hutchins, J. R., Ensign, 5th Battalion.....		15th do
Jackson, F., Arthur, Ensign, 3rd Battalion.....		15th do
Lindsay, Robert, Lieutenant, 5th Battalion.....		15th do
MacDougall, Campbell, Captain, do.....		19th May.
Mackinnon, James, Ensign, do.....		15th do
Morgan, James, Captain, 8th Battalion.....		
McLaren, W. D., Ensign, 6th Battalion.....		15th May.
McLennan, James A., Ensign, 5th Battalion.....		15th do
Sixby, Horatio N., Captain, 60th Battalion.....	1st September...	
Stewart, Samuel D., Ensign, 6th Battalion.....		15th do
Thomson, William, Captain, 55th Battalion.....	1st March.....	
Whyte, A., Lieutenant, 5th Battalion.....		15th do
PROVINCE OF NEW BRUNSWICK.		
McLean, Hugh Havelock, Captain, 62nd Battalion.....	4th August.....	
Thomas, Albin, Ensign, do.....		6th August.
CAVALRY CERTIFICATES.		
The following cavalry certificates were obtained from a Board of Examiners in the Province of Quebec, in 1872:—		1872.
Blackburn, John F.....		30th March.
Bolduc, Alfred.....		30th do
Flanagan, William.....		30th do
Fraser, August.....		30th do
Kent, William.....		30th do
Lawlor, Michael.....		30th do
Letellier, Joseph.....		30th do
Tierney, Michael.....		30th do

APPENDIX No. 9.

REPORT OF DIRECTOR OF STORES, &c.

DEPARTMENT OF MILITIA AND DEFENCE,

STORE BRANCH, OTTAWA, 1st January, 1877.

SIR,—I have the honor to submit, for your information, the following statement in relation to the Militia Stores and Properties in my charge.

Clothing.

This, in the past year as in the previous one, was made in the country from cloth of Canadian manufacture. Owing, it is presumed, to the fact that the Militia Force generally was not called out to perform its annual drill under canvas, as has been heretofore the practice, the demand for issues of clothing has been much less than in any previous year when encampments prevailed. There is now consequently a larger supply of clothing remaining on hand than was the case last year.

Ammunition.

The issue of Snider ammunition for practice, has last year amounted to 320,973 rounds of ball and 345,184 rounds of blank.

There has also been sold to the different Rifle Associations, and for individual target practice 511,302 rounds of Snider ball ammunition, for which deposit receipts have been received to the amount \$9,004.11. In this amount, however, is included sums received for the sale of gunpowder to the Post Office and other Departments for the service of the time guns at Ottawa and Quebec.

To the Field Batteries and different corps of Garrison Artillery, there has been issued for service and practice 18,421 lbs. of gunpowder and 10,044 friction tubes, with the usual proportions of shot, shells, fuzes, &c.

Arms.

The balance of the Spencer carbines (300) remaining unsold were disposed of at the same rate as was obtained for those sold last year. The amount realized for them being \$2,700.

Twelve more M.L.R. 9-pr. guns with carriages complete, as also ten additional carriages for those unmounted, remaining in store, have been received and distributed.

Twelve Field Batteries are now completely armed with these new pattern guns, as also the "A" and "B" Batteries. Two additional guns and carriages to the two previously sent to Manitoba, were forwarded to Winnipeg *via* the Dawson Route, in September last. Thus making a complete Battery of this description of guns for service in that District. There are now sixty of these 9-pr. guns in use.

The four 7-pr. rifled mountain guns at Winnipeg, with all their appurtenances and stores, including ammunition, shot, shell, &c., have been sold, and issued to the North-West Police Force for the service of that body. The amount to be reimbursed to this Department, for the guns and stores thus disposed of, will be \$4,468.40.

Boards of Survey

Were held in the different Districts in accordance with the General Orders on the subject. The obsolete and unserviceable stores condemned by those Boards were afterwards sold by public auction, and the amount realized by such sales amounted to \$1,406.10.

The aggregate amount received by the Store Branch for sales and rents was \$20,522.41. The detailed statement underneath shows the different items for which this amount was received.

DEPOSIT receipts from 1st January, to December 31st, 1876.

Ammunition.		Clothing.		Rent.	Arms and Accoutrements	Miscellaneous.	Total Amount.
Rounds.	Amount.	Officers'.	Mens'.				
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
511,302	9,004 11	7 70	1,272 16	5,615 73	3,100 78	1,521 93	20,522 41

Tenants and Rental.

The list underneath gives the number of Departmental tenants, the different localities and amount of rental. The arrears of rent at the close of the present year amounted to \$164.50

Localities.	Tenants.	Rental.
		\$ cts.
Chatham, Ont.....	1	5 00
Niagara.....	5	86 00
Toronto.....	3	240 00
Kingston.....	25	592 51
Ottawa.....	1	1 00
Montreal, &c.....	4	251 75
Isle aux Noix.....	2	54 00
Quebec, &c.....	20	3,130 71
Point Levis.....	33	1,154 25
New Brunswick.....	14	133 49
Nova Scotia.....	5	169 71
Prince Edward Island.....	1	1 00
Total.....	114	\$5,819 42

THOS. WILY, Lieut.-Colonel,
Director of Stores and Keeper of Militia Properties.

To the Honorable
The Minister of Militia and Defence,
Ottawa.

 APPENDIX No. 10.

ENCAMPMENTS.

(Memorandum.)

The following extracts from the "Regulations and Instructions for Encampments" of Her Majesty's troops are published for information of the militia. It is, however, not to be understood that their publication changes the "Regulations and Orders for the Active Militia, &c., 1870."

By order.

WALKER POWELL, Colonel,
Adjutant-General of Militia,
Canada.

HEADQUARTERS, OTTAWA,
January 1st, 1877.

QUARTER-MASTER GENERAL'S OFFICE,
HORSE GUARDS, WAR OFFICE,
1st May, 1875.

The Field Marshal Commanding-in-Chief has been pleased to direct that a new edition of the instructions for the encampment of Her Majesty's troops be prepared and promulgated for the information and guidance of the Army.

Although troops must be guided in the position and form of their encampments by the shape and nature of the ground, the proximity of wood and water, and, in actual warfare, by a variety of considerations that defy all rules, it is nevertheless desirable that certain definite forms of encampment should be established by authority, to be modified as occasion may require for the convenience of the troops and efficiency of the Force encamped.

By Command of His Royal Highness the
Field Marshal Commanding-in-Chief,

C. H. ELLICE, Q.M.G.

 REGULATIONS AND INSTRUCTIONS FOR ENCAMPMENTS.

GENERAL PRINCIPLES.

1. *Camps.*—Camps may be formed of huts or of tents, or they may be mere Bivouacs made of brushwood, straw, branches of trees, or anything soldiers can find ready to hand.

Hut encampments are chiefly used when an army occupies a defensive position for a long time, or during a siege; they are rarely made during a campaign.

Of whatever materials a camp may be formed, it is evident that its position and form must, to a great extent, be governed by either strategical or tactical reasons.

2. *The Selection of a Site.*—The site for a "standing" camp is selected chiefly because it presents certain strategical advantages. The site for a "flying" camp is chosen on account of some tactical advantage the ground may offer.

The principle formerly laid down that troops when encamped are to occupy the same front as in line of battle is in the present day considered inadvisable. It assumes that the enemy is coming from one particular direction in which it is necessary to be ready for him, but as the army so encamped is less ready in every other case, such a mode of encamping can therefore be only necessary when from sanitary considerations it is desirable to open the tents out as much as possible. The encamping of troops in the field is nothing more than their location in such a manner that they can be rapidly formed in a good position for action. This does not involve the necessity of encamping on the very position itself. On the contrary, it is preferable to encamp under cover in rear of, but so near to the position that it can be immediately occupied. It is most desirable that such a position should be selected as can neither be commanded nor turned. Such a happy combination of circumstances cannot, however, always be found. Before an enemy, purely strategical and tactical considerations are of the first importance, but in determining between two sites, in which these may be equal or nearly so, it should be remembered that the comfort of the troops in reference to the nature of the ground they may have to lie on, should, in conjunction with sanitary conditions, be the next consideration. For if men are on very rough, steep, damp, or stony ground their rest and therefore their health and efficiency will suffer.

Circumstances may sometimes render it necessary to encamp a force in a position commanded by a neighbouring height, in which event such height should be occupied by a picket, or a detached body of troops, or according to circumstances be entrenched so that it may be successfully held by a small force.

The next points to be considered are the facilities which the site selected offers for obtaining water, wood, forage, and straw; the relative importance of these things being shown by the order in which they are named. Very often they cannot be obtained on the site chosen as being a good defensive position; in which case they must be carried to the ground at great cost and labour, or a position inferior in a defensive point of view must be selected. The want of water compelled the Duke of Wellington to occupy the ground on which his army was encamped, prior to the action at Vimiera, in a manner which had to be altered almost at the moment of the French attack.

The site of a camp should be sandy or gravelly, and dry; clay is usually damp. The side or top of a hill is much to be preferred to the ground immediately at its base. Wet ground surrounded by marshes should be avoided as much as possible. If troops have to be encamped on such a piece of ground for more than one night, drains should be cut through it to allow the water to flow away. The presence of moss generally indicates marshy ground.

Wood must usually be obtained by cutting down such trees as are most convenient for the purpose. It is unwise, however, to encamp in a forest or wood of any extent, if it can be avoided, the accumulation of decaying leaves under the trees being often so great as to produce attacks of fever. A division of the French army which encamped in a forest the night before the battle of Raab was almost decimated by fever. Newly ploughed ground should be avoided. Grass is always healthy to encamp on. Brushwood is bad, unless on a gravelly or sandy soil: it is perhaps better not to disturb it if the camp is merely for a night or two; but in the case of a standing camp, it should be cut down.

Ravines and water-courses must be carefully avoided. A sudden fall of rain will often, in a mountainous country, convert a dry ravine into a large stream.

[By the Medical Regulations, camping ground should be inspected by the Sanitary Officer.]

It will thus be apparent that the site of an encampment has to be viewed from two distinct points, viz., *military* and *sanitary*; and this is the case with every encampment, whether of a division, of a picket, or of an outpost. The movements, or position, of the enemy must, of course, decide whether military or sanitary reasons shall weigh most in the selection of a site.

For a camp to be used for one night, and where the enemy is close at hand,

military reasons must be all important; while, if the camp is to be used for a longer period, or the enemy is not close at hand, sanitary reasons should be allowed due weight in the selection of the position.

In every case, the form of the camp must be suited to the ground, and the different arms of the service should be encamped on that ground best adapted for them. Thus, infantry may, if necessary, be encamped on ground with a considerable slope; mounted corps, on the contrary, should be encamped so that the horses may stand on nearly level ground. Wet spots must be avoided as much as possible; this may generally be obtained by slightly altering the line of encampment, throwing battalions back in echelon, encamping battalions by half-battalions, or adopting such other methods as a little ingenuity may suggest.

3. *Form of Encampment.*—The following are the principles which have mainly led to the establishment of the forms of encampment laid down in the following pages; and, however troops may be encamped, these principles should govern the disposition of the camp.

1st. The means of passing freely through the camp should be maintained.

2nd. The tents, bivouacs, or huts should be disposed with a view to the greatest amount of order, cleanliness, ventilation, and salubrity.

3rd. The camp should be as compactly arranged as possible, consistently with the above considerations.

With large bodies of troops a straggling camp with a wide front is to be avoided, such an encampment is not only tactically disadvantageous, but increases all the necessary labour of fatigue duties, delays the delivery of supplies, and impedes the circulation of orders. When the military telegraph is available, camps when separated by half a mile or more should be connected by wire. This saves both men and horses from much orderly duty.

4. *Precautions to be taken.*—Whenever troops remain in camp more than three days, tents should be struck every two days. All arms, straw, and blankets should be removed from the ground covered by the tent, and the ground should be swept clean with a broom, or branches of trees, and left exposed to the sun and wind. Blankets, clothes, &c., should be spread out to air, and the tent roughly pitched in the intervals of the camp with slack ropes, and the fly loose to allow it to be well blown about: tents should never be pitched for occupation in the intervals. Men invariably at night urinate round the tent and consequently pollute the ground.

If troops remain more than one night in camp, the tent flies should be rolled up the first thing every morning; in rainy weather, the fly may always be rolled up on the leeward side of the tent.

As a rule, the doors of the tent should face the head of the column, but this rule should never prevent their being turned away from the prevailing wind when necessary.

Trenches should be dug round tents, and a drain should connect these trenches so that the water may not lodge in them, but may run freely off. The first wet day after the camp is formed, officers commanding companies should personally examine the ground on which their companies are encamped, and should see that proper drains are constructed:—half-an-hour's work on a wet day, when the natural run of the water can be seen, will do more to keep the camp healthy than a day's labour in dry weather.

5. *Position of the different Arms.*—In encamping large bodies of troops, it is very desirable that a sketch of the ground, no matter how rough, showing the place to be occupied by each corps, should be prepared beforehand; by this means the officer charged with forming the encampment can in a few minutes place the whole of the camp-colour men, so that when the regiments arrive they may proceed at once to the position assigned to them. Cavalry and Artillery should never be placed on a flank, unless the latter may be necessary for defensive purposes, in which case the guns should be protected by a strong guard of Infantry. The reason for this is that, in case of attack, mounted corps take longer to turn out, and the horses, if frightened, are apt to produce much confusion.

The Engineers usually encamp close to Head Quarters of the Division.

The Telegraph wire should be laid from Head Quarters to the nearest point on the main line, and, if the camp is large, to the wings of the camp. As soon as the pickets and outposts are placed, arrangements should be made for communicating from them to Head Quarters by signal, either by day or night.

The Depôts both of provisions and munitions should be placed in a central position, with easy access to all parts of the camp.

The site for the Depôts should be selected close to a good road, by which the supplies can be brought up. Space should be allowed for the Army Service Corps to encamp near the depôt. If the camp be large, it may be convenient to divide the depôt into two portions, one for the issue of bread and meat, the other for forage. A sufficient space should be allowed for fatigue parties who come for rations to halt without crowding. The hours when rations of bread, meat, and forage are issued are named in orders, and the Brigade captain of the day should attend to see that there is no crowding or confusion. It may be sometimes convenient to form rough counters for issuing rations; these can be easily made of the tail-boards of wagons placed upon stones or banks of earth. A way in and out should be made, so that the two parties, those who are coming and those who are going, may not interfere with one another.

6. *Camp Equipment.*—When troops are ordered either for active service in the field, or to encamp at home, the various articles termed generally *camp equipment* are issued to them. These articles are supplied by the Ordnance Store Department on requisitions being made on it; such requisitions have to be examined and approved by the Ordnance Store Officer of the division prior to the issue being made, and must state the exact number of the troops for whom camp equipage is required. At the time appointed for making the issue, an officer, with a fatigue party and the transport detailed for the purpose, should attend at the military stores and take over each article; this duty should be very carefully performed. If broken or damaged articles are taken over by the officer so employed, not only may the regiment have to pay for the articles, but very serious inconvenience may result, there being many cases when it is difficult to get things replaced; it is therefore of considerable importance that the officer should be acquainted with the use of each article. When the issue is completed, the officer gives a receipt, and receives a delivery voucher from the storekeeper.

As the officer detailed to draw camp equipage receives it, he should be careful not to pack the articles just as he gets them:—he should pack the equipment by companies, marking on the outside of each wagon the number of the company to which it belongs; the articles for general service being packed quite distinctly. The equipment should be handed over to the officers commanding companies by the quartermaster, who will retain the articles for general service. In packing the wagons, care should be taken that those articles that are likely to be wanted first should be put in last. Thus, the blankets should be put in first, as, if the weather be wet, they may with advantage be left in the wagons until the tents are pitched; the intrenching tools, being required first, should be put in last.

In packing the wagon, one man should get in, and the cover may be taken off; but the wagon is in no case to march without its cover being on and properly secured. When the wagon is being loaded, the driver should dismount and stand to his horses' heads. The wagons, numbered according to the companies, should march as the companies stand on parade; the baggage guard of each regiment marching together in rear of the last regimental wagon, the first wagon being preceded by one corporal and two men, with as few men as possible distributed along the line.

7. *Appointment of Baggage Masters and their Duties.*—When one or more divisions of an army are marching there will usually be appointed:—

- i. A divisional baggage master.—A field officer.
- ii. A brigade baggage master for each brigade of cavalry and infantry.—A captain.

The divisional baggage master will take his orders from and be responsible to

the A. Q. M. G. of the division, who will give him distinct instructions as to the route or routes which the baggage of the division or of the several brigades is to follow, and the order in which it is to move as well as the time of march. The divisional baggage master will also be responsible for the regularity in movement and for the safety of the baggage. The baggage guards will be under his command.

The divisional baggage master will instruct the baggage masters of brigades, arranging with them the points at which the baggage of their respective brigades is to enter the column of route and the order to be observed. These instructions should be given in writing as well as personally on the ground.

The brigade baggage masters will similarly make arrangements with officers commanding regiments, as to the time at which wagons are to be ready, and where they are to be packed. Commanding officers will be responsible that the wagons are loaded in good time, and that they are not overloaded. This chain of responsibility, and the zealous personal efforts of all concerned, will alone insure order and regularity in the performance of a duty which involves consequences of vital importance to the comfort and well being of the troops, and to the success of the operations.

Care should be taken that canteen carts when provided for regiments from private sources are properly horsed and the harness in good order. Such carts should be paraded and move with the regimental baggage. If this be not strictly enforced, the drivers will probably precede the troops in order to arrive early on the next camp ground, and will thus interfere with their free movement along the road, or if a break down takes place, will, in a narrow road, obstruct the whole baggage of the column. Officers commanding regiments will be responsible that these cautions are observed.

Corps usually take it in rotation to march at the head of the column; hence, as the order of march of the convoy must be changed each day, it will greatly facilitate matters if a small flag the colour of the facing, and with the number of the regiment, be attached to each wagon; a little arrangement and care in observing this order in the march of the convoy will prevent much confusion when the camp is being formed, and keep the men a shorter time waiting for their tents,—a matter of great importance, as soldiers are apt to stiffen when halted after a hard march, and it is desirable to get the camp pitched before they do so.

FORMATION OF THE CAMP.

8. *The different Orders to be adopted in encamping Troops.*—Camps will be formed in one or other of the following orders:—

Infantry and Cavalry.

No. 1, or open order.

No. 2, or half order.

No. 3, or close order.

Artillery:

No. 1, or open order.

No. 2, or half order.

Engineers:

No. 2, or half order.

No. 3, or close order.

Army Service Corps:

No. 2, or half order.

No. 3, or close order.

The No. 1, or open order, of the cavalry and infantry will only be used when there is plenty of space, and when medical considerations require the tents to be widely spread.

No. 2, half order, for the infantry, cavalry, engineers, and No. 1 for artillery, will be that usually ordered.

No. 3, or close order, represents the smallest space on which the several corps should encamp.

When the frontage space does not admit of the troops or companies being encamped even in close order, the regiments may be encamped by squadrons or double companies, should the depth of ground allow of it, but this is not advisable, as some of the officers are thus further separated from their troops or companies.

The following intervals will be observed as a rule, but they may be reduced when found necessary:—

Between battalion of infantry and battalion of infantry, 30 yards.

Between battalion of infantry and regiment of cavalry, 30 yards.

Between battalion of infantry and battery of artillery, 34 yards.

The plans for divisional head-quarters only indicate what will be found convenient under ordinary circumstances.

No plan is given for the camp of brigade head-quarters, as from the few tents composing it, no difficulty will be found in placing them according to the ground near centre of the brigade.

The plates above mentioned are intended to show camps for battalions, squadrons, &c., at their full war strength. When the regiments, &c., are on the peace establishment, the staff officer charged with the arrangements for encamping the troops will make a proportionate reduction in the size of the camps.

9. *Marking out the Camp.*—Two privates of each corps will be detailed for the purpose of marking out the site to be occupied by the camps of the regiments to which they belong. One should know and have in writing, the number of files of his corps in line, and the number of paces required for its front.

These men, provided with camp colours,* will parade with the advance guard and move off with its support.

On their reaching the ground on which the quarter-master or other mounted officer of each regiment should arrive with them, the staff officer (who, as previously stated, should, if possible, have a knowledge of the ground, and a rough sketch of it) will proceed to mark off the camp, as follows:—

Where the ground is sufficiently extensive to enable a brigade to encamp in line, he will place a marker as a base point for the line of tents; the other marker of the same battalion will measure the distances ordered for its front in the given direction (marching on some fixed point), halt, and turn about, the staff officer correcting his covering. The inner marker of the next battalion will take whatever interval may be ordered by the staff officer, turn about, and cover; the outer marker will measure the distance required for its front, turn about, and cover; and so on.

When the markers are covered, they will fix their camp colours in the ground firmly between their feet.

All intervals should be measured from tent pole to tent pole. When camp colours are used the poles of the flank tents of the front line should exactly replace the staffs of the camp colours on front line.

After tents are pitched the camp colours, if used, will be fixed in the prolongation of the line of poles of the tents of the flank companies, and between the last pegs of the front tents of these companies and dressed.

In order to fix the other two points which mark the rear of the ground occupied by the corps, a right angle must be laid out. This can be done with a tape as follows:—One man holding the 24th foot, and the end, will place himself in the alignment, six feet from the base camp colour; a second man will then pass the tape round the staff of the colour, and, holding the 14th foot, will tighten the tape,—he will then be at right angles to the front of the encampment (Pl. III.). If a tape is not at hand, a right angle may be pretty accurately laid out thus:—Place two men

* When, on service, camp colours are not issued, the ground must be marked simply by the men, or by other means improvised on the spot.

facing one another at the base camp colour, give the words *Right-about Turn, Quick March*, and, when they have marched about 10 or 12 paces to the front and rear of the alignment, *Halt. Right-about Turn*; if these men and the camp colour they started from are in line, the direction will be nearly correct (Pl. II.) The depth of the camp is then measured off.

10. *Troops arriving on the Ground*.—On approaching the camping ground, a field officer, or the adjutant, should ride on and ascertain from the markers of his corps (who should be on the look-out) the position the corps to which he belongs is to take up; he should then return to his corps and conduct it to its ground.

Infantry.—On arriving on the ground, each battalion of infantry will be formed in column of companies, at wheeling or any other ordinary distance in front of the line of camp colours, dividing the space between the front and the rear camp colours. When pressed for room, the column may be formed on the ground it is to occupy, but this is not desirable if it can possibly be avoided.

The quarter and rear guards should be mounted immediately the regiment arrives on the ground, and placed by the major.

Band, drummers, pioneers, &c., should join their companies, which should be at once told off in squads of one non-commissioned officer and 14 privates to each tent.

The colour-serjeant of the company should be told off for the rear tent, so that his captain may know where to find him.

The arms will be piled, and accoutrements taken off and placed in rows on the ground or hung on the piles of arms,

One non-commissioned officer and six men (one file as polemen, one as packers, one as pegmen) per squad or tent will be told off to be ready to pitch the tents when the wagons arrive† (Pl. I.).

The following parties should then be told off and paraded by the adjutant:—

Cooking party:—Two men per company under the serjeant cook.

Latrine party:—All the pioneers who carry pick-axes and shovels, and two men per company.

Water party:—One non-commissioned officer and two men per company, under a serjeant.

Ration party:—A non-commissioned officer and two men per company, or more if the company is strong, under the quartermaster serjeant.

Wood party:—Two men, or more if requisite, and a non-commissioned officer per company.

The remainder will sit down close to the pile of arms.

The Serjeant Cook will select the place for the kitchen, within the space marked out by the camp colours, and will make the kitchen as soon as the tools can be procured.

The Corporal of Pioneers will at once begin the latrines, it being essential that the ground should not be fouled; for this purpose he will dig a narrow trench some 15 feet long and about 1 ft. 6 in. deep. If the camp be only for one night, this will suffice; if for a longer period, this trench may be filled in and a deeper and larger one made, brushwood, branches, or grass being used to give a little shelter. The positions of the latrines must be left to the discretion of the staff or other officer encamping the troops. They should be at a distance from the water supply, and usually in rear of the lines.

The Ration party, under the quartermaster serjeant, will go to the Depôt and receive the rations.

The Wood party will, if no fuel is issued, seek for, and bring it to the kitchen.

As soon as the convoy of wagons makes its appearance, an officer from each corps should be on the look out for the regimental wagons, and conduct them to the rear of the camping ground. Care should be taken that they do not drive over the space within the colours, but pass through the intervals. They should be parked with

† In cavalry, tents can be pitched by three or even two men when more are not available. The method of pitching a tent with two men is described at page 250.

the tail-boards towards the camp, and they should not halt near any ground where tents are to be pitched, as horses stale when halted, and polute the ground.

On the wagons being halted, the whole of the tent party, with the exception of one pole man per tent, will march off, under a subaltern from each company, unpack the wagon, and bring up the tents.

The captains will parade the waiting pole men, in single rank, on the reverse flank of their companies at the ordered intervals, the polemen of the leading company being on the spot marked by the camp colour. The pole men will then receive the word of command, "*From the left (or right).—paces, Extend.*" The captains will dress the men from *left to right* of companies (or *vice versa*), a mounted officer covering them in succession from the FRONT. Each tent squad will bring up a tent, pegs, and pole, open the tent bag, and drive a peg between the heels of the pole man, who will grasp the pole; the tent will then be opened and placed on the pole. If the tent has storm guys, they will be fixed, and the ends placed over four pegs driven at right angles to one another five yards from the pole, marking four corners; if the tent has no storm guys, the four red runners will be held each by a man; the non-commissioned officer seeing that the door points the proper way and that the fly is hooked. On all being reported ready, the bugle will sound one G and the whole will be raised at once, the guys fixed, and the pegging down completed.

The officers' tents will then be pitched in a similar way.

Captains of companies should now examine the tents, to see that they are properly pitched; the arms, accoutrements, and blankets should be brought in; and a trench dug round each tent with a proper drain to carry off the water.

It may be desirable to encamp a regiment by half battalions, in which case each major will encamp his half-battalion as has been described for the entire regiment.

The space between the company tents in plans for No. 1 and No. 2 Infantry, is for the private parade of the company, which files out on the general parade ground clear of the camp colours.

11. *Cavalry.*—The regiment having arrived upon the ground for encamping will be formed in columns of troops in front of the camp. The quartermaster and camp colour men (who, if possible, will be sent on beforehand) will dismount and measure out the ground, each troop serjeant-major will stand at the head of his own horse lines, the outside rows of tents will be on the camp colours; the regiment will then receive the command "*File to your lines,*" upon which each troop will be marched, *Files right*, to its lines and be formed up to the reverse flank in single rank, at one foot interval from knee to knee, the horses' heads facing the line of tents. (By this method the ground near the tents does not become saturated with urine, the manure is kept together, and the men can easily get to their horses' heads.)

The regiment will then be dismounted, with carbines, without any reining back; the horses will be linked from the flanks to the centre, but if they are accustomed to the work and will stand steady, it may not be necessary to link them, in which case the reins will be placed over the front part of the saddle; each horse will be picketed separately. The men will lay down their carbines and swords between the lines for the tents and the horse lines, take off their accoutrements, strip the saddle, rolling everything up in the sheepskin; the pegs will then be driven in 4 feet apart, and the horses unbitted as soon as each horse is fastened up; three stable guards per troop will be told off, and the remainder will fall in and be told off for drawing tents, forage, rations, fuel, &c.

The tents will then be pitched in accordance with the tent pitching instructions.

The forage is to be kept in the centre of the lines between the two central tents.

The horses will be unsaddled when the backs are cool, and the saddles placed near each horse and raised, if possible, off the ground. The bits will be taken off, the headstalls left on. So soon as the camp is pitched, the horses, when cool, may be taken to water, and on their return, fed. If the horses are not used to being picketed, it is advisable that they should be picketed as they stand in the stables, and not as they stand on parade. It may also be desirable to leave the bridoon reins on while

feeding, so that if a horse gets alarmed and struggles there may be some command over him. In order to give the horses confidence, the men should be kept as much as possible among them; and, if the weather be fine, all cleaning of accoutrements should be done close to them. If, however, horses are used to being picketed, in a little time they stand as quietly as in a stable, and these precautions need not be taken. Kickers and vicious horses should at all times be picketed at a distance from others.

12. *Staff*.—The head-quarters of a general commanding an army corps are indicated by a flagstaff with a union jack.

The head-quarters of a general of division are indicated by a flagstaff with a square red flag.

The head-quarters of a brigadier are indicated by a flagstaff with pointed (triangular) red flag.

The commissariat and ordnance store officers' positions at divisional or brigade head-quarters are indicated by blue flags.

At night the above points are indicated by red and blue lamps respectively.

13. *Standing Camps*.—The foregoing remarks give the general principles on which camps are made. With reference to standing camps of tents, the following remarks may be useful:—

1. When straw is issued for the use of troops, it should be made into mats and not left loose in the bottom of the tent. Mats may be best made as follows:—The straw is twisted into ropes; two rows of tent-pegs are driven into the ground parallel to one another, and two feet apart, and the ropes passed round the pegs to form the web. Other straw ropes are interlaced, so as to form the woof, and an excellent mat is made in a short time. Each man should have two mats, one for his head and shoulders, the other for his legs. Four men will make the mats for an entire tent in one day, two twisting the ropes and two weaving. Mats may also be made with twine and straw, as shown on Plate 13, Fig. 1; but this method is not so good as the other.

2. When troops are in standing camp, it is very desirable to make a place for drying clothes when wet. A small piece of ground, about 30 feet long and 5 feet wide, is surrounded by a wall made of earth and sods; a trench 12 inches wide, and about 6 feet long, is dug, passing under the wall into the open space, which is roofed with brushwood, earth, branches of trees, and sods, and the clothes are hung up in it; a fire is lighted in the trench, and all orifices but one opposite the fire are closed; a current of hot air will then pass through the hut and dry the clothes.

3. Bathing places should be made for the men: if the water is obtained from a stream, these should be below the point where both men and horses obtain their supply. A hole may be excavated in the stream and allowed to fill, or a small dam may be made; or bathing places may be made by excavating holes on the bank, lining them with the tarpaulins covering the wagons, and filling them with water. Wherever practicable, some means for bathing should be adopted.

4. Arm racks should be made for each company; they should be formed of uprights 3 feet high, either of wood, earth or stones, a pole being laid along the top, and secured to the uprights. Each company should place its racks close behind the tents of the company immediately in front of it, so as to leave its private parade clear. These arm racks will be found very useful for cleaning accoutrements and resting arms against.

5. At night, and in rainy weather, the tent-ropes should be slackened, to prevent the tent-pegs being drawn or the pole broken.

6. When the women of a regiment are encamped, some sheltered place should be selected; the tents should, if possible, be placed at double intervals; and a rope, if it can be procured, fixed on stakes about 2 feet 6 inches high, should be used to surround the encampment. A washing shed, made of poles and branches of trees, should be constructed, and well drained. If a few old damaged tents can be obtained, they may be cut up for this purpose, and will afford a comfortable shelter from sun and rain for the women when washing. Very often such a shed can be conveniently made under the shelter of a wall or fence.

Sentry boxes may be made either of turf, or, if branches of trees can be obtained, by forming a rough wicker-work, 6 ft. 6 in. high, and 3 feet square—this should then be thatched with straw. Three men will make a sentry box in two days.

14. *Bivouacs*.—Bivouacs are encampments formed without huts or tents.

A slight amount of shelter will protect a man from wind, and a very small piece of canvas or waterproof judiciously placed will protect him from rain.

In a mild climate in fine weather, a bivouac may be formed with the men's blankets only. Of four men the blankets of two may be used for shelter as *tente d'abri*; the blankets of the other two men being used to cover all four who lie under the shelter thus provided.

Two short sticks are cut to form uprights and stayed by short strings attached to pegs driven into the ground, the ridge formed by the inner edges of the two blankets is supported by a string attached to the two uprights, the blankets are pinned together by thin skewers of wood. The troops in New Zealand encamped in this manner for six weeks.

When troops bivouac, the ground should be occupied on exactly the same principles as if a tent encampment were being made. When space is available, the best method is to dig a circular trench about 15 feet in diameter. The turf should be carefully cut and placed so as to revet the interior slope; the earth should be thrown against it, and a bank some two or three feet in height formed, a way in should be left, and the fire lighted in the middle; the men will lie down like the spokes of a wheel, with their feet to the fire. If *tentes d'abri* are issued to the men, they may be buttoned together and pegged down to the top of the bank, and supported on their poles over the men's feet; an excellent encampment may be thus made. Each bivouac will accommodate from 25 to 35 men.

It is not advisable to bivouac under single trees, as there is always an eddy of wind under a tree:—it is better to trust to the means above described.

15. *Information to be detailed in Orders*.—The following should be detailed in orders:—

1. The hour at which tattoo and *revillé* will sound.
The hour when orders will be issued daily.
The hour at which rations and forage will be issued, and the places where the Commissariat depôts are formed.
 2. The position of Head Quarters.
The position of the various Staff-officers' tents.
The position of the Commanding Officer Royal Artillery tent.
The position of the Commanding Royal Engineer's tent.
The position of the tents of the Officers of the Commissariat and Ordnance Store Departments.
When, and where, letters are posted.
When, and from whence, telegrams can be sent.
- [The positions of all the above offices should be indicated by sign-posts.]
The direction of the march, and the number, composition and strength of the picquets, had better be kept out of orders, only those persons who are actually interested being informed by memoranda.

STRIKING CAMP.

16. *Striking Camp*.—The hour for assembly and the hour for *revillé* are named in orders, and it is very desirable that the men should not be disturbed one moment sooner than requisite. The practice of knocking tent-pegs to loosen them, drawing picket posts, &c., which young soldiers, in their desire to be smart, often resort to, should never be allowed; no man should stir until the *revillé* is sounded, which should be from the head-quarters of the Division, and taken up by the brigade and regimental bugles in succession.

The moment *revillé* has sounded, the cooks should proceed at once to light the fires and make coffee; for which purpose the firewood, water, and all requisite

materials should be prepared overnight. It being a matter of great importance that men should not march on an empty stomach, this should not be left to the serjeant cook alone, but officers commanding companies must see that all preparations are made overnight. While breakfast is being got ready, the blankets will be rolled up and packed in the wagons, the trenches round the tents filled in, and the refuse round the kitchen collected. When the men have had their breakfast, the fires will be extinguished, the refuse thrown into the trenches, the trenches filled, and chimneys levelled. The latrine party will fill in the latrines; and the tents will be struck, rolled up, and put into their bags. No violence should be used in getting out the tent pegs; they should be struck gently and carefully collected. Picket posts should be drawn in a similar way. Officers commanding companies should remain in the company lines and see the camp struck; one officer per company should personally see each article of his company camp equipment put into the wagons, the intrenching tools being put in last. As each company strikes camp, and packs its equipage, it will fall in on its private parade, and the men will put on their accoutrements, unpile arms, and file on to the regimental parade.

A mounted officer should ride over the ground to see that nothing is left behind, and that the latrines and kitchens are filled in, and the bones, offal, and rubbish buried. As the corps move off to the place of assembly, a staff-officer, generally of the Quartermaster General's Department, should ride over the ground to see that nothing is left behind, and the ground left fit for the next column to encamp on; he should report to the general officer commanding any neglect on the part of corps. He should also see that the baggage moves off as directed; having done this, he will ride rapidly to the front of the column and report accordingly.

No private vehicle of any kind should be allowed to join the column without authority. Sutlers, canteen keepers, &c., should be compelled to march at the end of the convoy and not be allowed to mix up with it. The camp police should remove all such persons.

WATER SUPPLY.

17. *Water Supply.*—Few things are of more importance to the well-being of troops when encamped, than a plentiful supply of pure water.

Water is usually obtained from streams, ponds, or existing wells. When troops are encamped for a considerable time, or when stationary depôts are formed on the line of communications, it may be necessary to sink wells, make reservoirs, and lay pipes.

From whatever source the water supply is derived, it is absolutely requisite that it should not be polluted. The officer entrusted with the duty of forming the encampment will therefore post sentries over it, taking them from the first troops that arrive on the ground; when the camp is completely formed, a regular guard will be posted over the water supply. If the supply is from a stream, great care should be taken that the watering place for the men should be distinct from that for the animals. The latter must be lower down the stream than the former, and it is advisable to send patrols up the stream to prevent men washing or bathing in it.

All washing in the neighbourhood of wells or watering places used for drinking, should be strictly forbidden, as the foul water percolates through the soil.

If the stream have a muddy bottom, great care should be taken not to stir up the mud by dipping vessels into it; small field pumps, which form an article of Engineer equipment, should be fixed and the supply obtained in that way. If the stream be shallow, dams should be made on it; these are easily constructed with a few pickets and sods,—a small piece of tarpauling may be used with great advantage for the purpose of making them water tight. A barrel sunk in the bed of the stream affords a convenient place into which to dip the sucker of the pump, or collect water.

Filters can be easily made by placing two barrels one within another, and ramming the space between with clean straw, coarse sand, and charcoal if it can be

procured, or branches of trees with the bark taken off. The water is allowed to flow into the outer barrel and rises through holes pierced in the bottom of the inner barrel. In a standing camp, if the water is not good, charcoal should be made, and the water regularly filtered; an average of 1 gallon per head is sufficient for troops when encamped; if in standing camp, this allowance should be increased, as men should be encouraged to wash themselves as much as possible.

If the banks of the stream or pond are steep, they must be cut down so as to allow the animals to drink easily. If the soil is muddy, branches of trees, fascines, and stones should be laid down to prevent the animals sinking in the mud. A horse, bullock, or mule drinks about $1\frac{1}{2}$ gallons at a time, and takes about 2 minutes to drink, or, if unavoidable confusion be allowed for, about 3 minutes. The time requisite to water any number of animals may therefore be easily calculated if the number that can drink at one time is known. If many animals have to be watered, and the frontage is small, the hours at which each corps is to water should be laid down to avoid unnecessary crowding.

An officer should invariably accompany all cavalry water parties, and instructions should be given that each horse as soon as he has drunk should leave the water, and the party should fall in at a little distance clear of the next corners.

If animals have to be watered from a very shallow stream, it should be deepened, either by making dams or by excavating the bottom; animals drink more rapidly when the water is from 4 to 5 inches deep than if it be shallower.

There are three kinds of pumps generally used for military purposes.

1. A small hand, lift and force, pump with flexible hose. This will draw water from 18 feet and throw about 16 feet, working with a lift of 18 feet and a throw of 7 feet (the height of an ordinary water cart); it will yield 7 gallons per minute.

2. The Norton tube well. This consists of tubes driven into the ground with a monkey, and with a pump screwed on the top. One of these wells take about 3 hours to fix; it will yield about 7 gallons per minute, and will keep three horses drinking at one time. *These pumps are very useful in searching for water.*

3. The "Bastier Pump" is a pump with an endless chain, working over a wheel; it yields from a depth of 45 feet (worked with two men), 2,200 gallons per hour.

If the water supply is from wells, troughs must be provided for the animals to drink out of. These may be made by simply excavating the ground and roughly paving it with stones, or they may be made of wood or sheet iron if it can be procured.

LATRINES.

18. *Latrines.*—*Latrines* should, as has been said, be made as soon as the troops arrive on the ground; a small shallow trench will suffice for one night, and should be invariably filled in, in the morning, before the troops march off. In standing camps, latrines may be made with seats.

The seat being a simple rough pole, additional comfort may be given by adding a top pole to form a back, but this is quite needless. The trench should be made as narrow as possible and from 3 to 4 feet deep. *A fatigue party should throw a couple of inches of earth over the soil every day. This, if carefully done, will prevent all smell.* When the trench is filled up, a fresh one should be dug near it. In camps for women and children, the open space under the seat should be closed by roughly nailing rails along, and a lower seat should be provided for children.

Too much care cannot be bestowed in selecting the site of the latrine, and placing it so that no filtration from it may reach the water supply.

A small piece of canvas may be carried to give some shelter to the latrines.

The strictest orders should be given to prevent men committing nuisances in the camp or its intervals; men doing so should invariably be confined.

In a standing camp, a urinal should be established.

COOKING.

19. *Cooking*.—To cook rapidly and well is an art which can be easily acquired, and which every soldier should learn. Officers commanding companies should see that there are a certain number of men (at least 8 or 10) in their company who have been instructed in cutting up meat, in making field kitchens, and in cooking.

The Serjeant Cook is specially trained for the purpose of instructing men in this essential portion of their duty, and officers commanding companies should see that the company cooks *really* learn these things. It is a matter of paramount necessity that soldiers' food should be carefully looked after. This duty should never be left to a non-commissioned officer, but should be carefully attended to by the company officers themselves.

When a regiment encamps, the cooking party, consisting of the serjeant cook, the assistant cook, and two men per company, will proceed to make the kitchen. If the encampment is only for a night, one trench per company should be dug 6 feet long, 9 inches wide, and 18 inches deep at the mouth, and continued for 18 inches into the trench then sloping upwards to 4 inches at the back, with a splay mouth pointing towards the wind, and a rough chimney 2 feet high at the opposite end formed with the sods cut off from the top of the trench; it will be advantageous if these trenches are cut out on a gentle slope.

This trench will hold 6 Flanders or 9 Torrens' kettles, and will cook for about 50 men.

All brushwood and long grass should be carefully cut for a circle of 20 feet round the kitchen, and may be used to light the fire with.

The water party must bring up the requisite water in camp kettles, which are of two kinds; the Flanders, or large pattern, which will cook for 8 men, or, without vegetables, for 15; and the Torrens, or small, which will cook for 5 men, or, without vegetables, for 8. The former kettle weighs $8\frac{3}{4}$ lbs., the latter 3 lbs. The Flanders kettle is generally used where transport is provided, the Torrens when the men themselves have to carry the kettle. Each company should mess by kettles, that is to say, the mess should be composed of a number of men according to the kettle used.

The serjeant cook should divide the meat, potatoes, &c., to the various companies, and the company cooks should cut it up into conveniently sized pieces and place it in the kettles. When a regiment encamps for more than one night he should be careful every evening to see that the kettles are filled with clean water and placed upon the trenches ready for next morning, and also that the wood is cut up into slips and laid in the trenches, so that in the event of rain during the night the interior of the trenches and wood may be kept dry.

Lighting the fires is often not an easy task, and should be performed by a man used to the work. Small pieces of dry wood should be sought for, and, if possible, carried by the cooks from one encampment to another: these pieces should not be larger than lucifer matches, and the first light being obtained, the fire should be gradually fed with larger pieces, until pieces of wood three or four inches in diameter are used. The moment the fires are well lighted the kettles should be laid on the trench, and be brought to a boil, after which they should be allowed to simmer gently. The dinners ought to be ready in an hour after the kettles are put on the fire.

If there is no time to dig a trench or the ground be hard, the kettles may be placed in rows 10 in. apart, and the fires lighted between them, the heat being thus applied to the sides in place of the bottom. By this means, however, the cooking takes a little longer, and requires a little more fuel. *Troops should, under all circumstances, have their dinners ready one hour and a half after the rations are issued.*

If troops remain in camp more than a day or two it is advisable to make a regular Field Kitchen; of these there are two kinds in use in the service, the broad arrow and the triple arrow kitchens.

1. *The Broad Arrow Kitchen*.—The broad arrow kitchen consists of three trenches converging to a point, with their mouths connected by a semi-circular

trench, and a chimney from 5 to 6 feet high, formed from the turf cut from the top of the trenches, and other sods obtained from a little distance for this purpose. (Plate 16.)

This kitchen is constructed as follows:—

The site having been selected a picket is driven to mark the centre of the chimney, and a square of 3 feet is marked off on the ground with the picket as a centre for the base of the chimney. The trenches are next traced, the centre one towards the quarter from which the wind is blowing. The centre trench is traced 12 feet long and 9 inches broad, with a mouth as shown on plan: the two other trenches are traced of similar dimensions, one on either side, converging on the chimney with their outer ends at a distance each of 5 feet from the central one. A semicircular trench, 2 feet wide, is then traced to connect their mouths, the inner and outer edges at radii of $15\frac{1}{2}$ and $17\frac{1}{4}$ feet respectively from the centre of the chimney.

One man excavates each trench, commencing from the base of the chimney, each trench is 18 inches deep at the mouth, and for 18 inches inwards, then slopes gradually up to 6 inches in depth to where it enters the chimney. Another man cuts out the bottom of the chimney and then commences building it with sods cut by a fifth man; as soon as these trenches are dug one man bores a tunnel from the head of each into the chimney, while the other two men excavate the semicircular trench connecting their mouths; this trench is 21 inches deep. The men in the trenches having completed them, are employed respectively in providing and mixing clay, carrying water, and covering the trenches for the reception of the kettles. Great care must be taken in the construction of the chimney, all holes and interstices being plastered up with clay. The inside of the trenches may be rendered with clay if it be plentiful, in which case the dimensions should be slightly increased; if the clay be scarce, the trenches should be cut smooth. Each trench will accommodate 9 Flanders or 11 Torrens' kettles, the holes for which should be moulded from one, in clay, if procurable, the intervals across the trench being covered by turfs, placed grass side down, or with stones, hoop iron or sticks plastered with clay, all interstices being closed with clay or sods.

Such a kitchen will cook for 220 men with the Flanders' kettle or for 165 men with the Torrens' kettle, and will last a fortnight when not rendered with clay. In using Torrens' kettles a greater number of men's dinners can be cooked, as well as a great saving in time effected by placing them close together without intervals and banking in the whole with sods and clay; by this arrangement a trench 12 feet long will accommodate 16 kettles. It is desirable to add other branches to such a kitchen, so that the men may stand out of the smoke.

One non-commissioned officer will superintend the construction of the kitchen by a party of five men, whose duties are as follows, viz:—

One man to cut one trench, temper clay, and tunnel flues.

One man to cut one trench, and half semicircular trench, and carry water.

One man to cut one trench and half semicircular trench and make moulds for kettles.

One man to build the chimney and one man to cut turf.

The tools, &c., required, are—

Axes, pick	-	-	-	-	-	-	-	-	-	3
Hooks, bill	-	-	-	-	-	-	-	-	-	1
Kettle, camp	-	-	-	-	-	-	-	-	-	1
Pickets, bundle of	-	-	-	-	-	-	-	-	-	1
Spades	-	-	-	-	-	-	-	-	-	4

Time to construct, 4 hours: time to cook, 1 hour.

2. *The Triple Arrow Kitchen.*—The triple arrow kitchen is a combination of three broad arrows connected by long trenches with a central chimney 5 to 6 feet high (Plate 17). This kitchen is better adapted for a standing camp than the broad arrow, will last in use for several months, cook for a greater number of men, and

owing to the long draughts given it, will, when once heated through, always draw in whatever quarter the wind may prevail.

This kitchen is constructed as follows:—

The site having been selected a picket is driven to mark the centre of the chimney, and a square of 3 feet is marked off on the ground, with the picket as a centre for the base of the chimney. The main trench, 26 feet long, is next traced, and a picket driven at a distance of 14 feet from the centre of the chimney, to mark the head of the central arrow, from this point along a line which cuts it at right angles, with the direction of the main trench, two other pickets are driven at distances each of 17 feet 3 inches to mark the heads of the central trenches of the outer arrow; from these pickets the latter trenches are next traced, 12 feet long and parallel with the main trench. On either side of each of the three central trenches other two trenches are traced, as shown on plan, converging on the central one, thus forming three arrows, each trench is given a splay mouth 2 feet long and 2 feet wide, and a transverse trench 54 feet long is traced to connect these, and lastly two trenches connecting the outer arrows with the main trench and chimney are traced. All the trenches, with the exception of the transverse one, have a uniform width of 9 inches, those connecting the arrows with the chimney have a depth of 6 inches; those forming the arrows are of the same dimensions as regards depth as already given in the description of the broad arrow kitchen, and the transverse trench is 21 inches deep and 2 feet wide. A party of 12 men under a non-commissioned officer are sufficient for the construction of the kitchen.

One man cuts out the bottom of the chimney and builds it, two men cut sods, and the remainder excavate the trenches as follows:—One man cuts out the main trench, and the other eight men each one of the trenches forming the arrows; when the latter are completed, two men are set to work to excavate the two trenches leading from the outer arrows to the main trench and chimney, while six men are employed in excavating the transverse trench; the men in the trenches having completed them, four men provide and mix clay, two carry water, and the remainder cover the trenches with sods and the loose earth already excavated, and construct moulds for the kettles.

The transverse trench should be drained according to the slope of the ground to carry off the water in wet weather.

Such a kitchen will cook for 700 men.

The tools, &c., required are:—

Axes, pick	-	-	-	-	-	3
Hooks, bill	-	-	-	-	-	2
Kettles, camp	-	-	-	-	-	3
Pickets, bundle of	-	-	-	-	-	1
Spades	-	-	-	-	-	11

Time to construct, 10 hours; time to cook, one hour.

3. *The Aldershot Field Oven.*—The Aldershot field oven is constructed of sheet iron and consists of seven pieces, viz:—

- 4 sections forming an arch,
- 2 doors or end pieces, and
- 1 bottom plate.

It is erected as follows:—

The bottom plate is first laid on the ground, the sections forming the arch are then hooked together, and adjusted over the plate, a small trench is next dug in front and rear, and the excavated earth is thrown over the arch to a thickness of about 12 inches, and the rear of the oven is then closed by one of the doors or end pieces and banked up with earth.

This oven, which is now ready for use, can be heated in about three hours, and when heated, will bake 90 ration loaves of $1\frac{1}{4}$ lbs. each, in about $2\frac{1}{4}$ hours,

This oven weighs about 300 lbs., and when erected for use measures 6 feet 10 inches in length, 3 feet 4 inches in width, and 1 foot 8 inches in height.

Baking bread is generally performed by the Commissariat. But it is very desirable that troops should have a change of food, when possible, and also that, if requisite, they should bake their bread.

A field oven consists of a hearth sunk below the surface, with an arch formed by a hurdle, and can be made as follows:—

The lines to be traced are the cutting lines of the hearth, its doorway, and those for the ramp. A rectangular space 5 feet long and 3 feet 6 inches broad is excavated to a depth of 6 inches, to form the hearth of the oven. It is levelled and covered with a layer of clay mixed with cow-dung, which is also plastered on the sides of the excavation. At the mouth of the oven a sod-work flue, 9 inches square inside, is constructed, a square hole, one foot high and broad, being left in the lower part of it, on a level with the hearth, for a door to the oven. At the other end of the oven a wall of sod work plastered with clay is built up to the height of the top of the arch, and a hole dug 3 feet deep, 3 feet 6 inches wide, 9 inches in front of the chimney, connected with the ground level by means of a ramp 18 inches wide; this hole is for the baker to stand in.

While the above work is being done, the arch of the oven is made:—An arc is struck on the ground with a radius of 1 foot 10 inches, and nine pickets rather more than 5 feet long, are driven into the ground, and a brushwood hurdle 5 feet in height formed on the pickets; the concave surface is then covered with a mixture of one part cow-dung to three parts clay, and, having been dried in the sun, is coated over with another thin coat of the same mixture. The arch so prepared is laid over the hearth already levelled, and is then well coated over externally with the clay mixture, and finally covered over with the earth from the ramp to a thickness of 1 foot 3 inches at the top, the slopes projecting 18 inches beyond the hearth. The entrance to the oven is closed, either by a door made of hurdle work covered with clay, or simply by sods.

One non-commissioned officer and seven men are required to construct each oven; two men being employed in cutting out, and preparing the hearth, building the flue and end walls, and excavating the ramp, two more men in procuring and mixing the dung and clay, while three men cut the brushwood, make the hurdle and plaster it. Plate 18 shows the oven complete.

The following tools are required:—

Axes, pick	-	-	-	2
Hook, bill	-	-	-	1
Knives, gabion (or bill hooks)	-	-	-	3
Line, tracing	-	-	-	1
Mallet	-	-	-	1
Shovels, field	-	-	-	4

The oven might be completed in four hours, but as the putting on of the second coat of plaster on the arch must be delayed until the first is dry, the time will depend much on the heat of the sun.

This oven will contain from 70 to 80 two-pound loaves, and would therefore bake, each time it was heated, bread enough for from 140 to 160 men. The time for heating such an oven on the first occasion would be from one hour to one hour and a quarter.

A kneading trough, of the dimensions shown in Plate 18, should be constructed near the oven.

An excellent oven may also be made by intertwining hay bands together, bending them into a semi-circle, and covering the arch so formed with earth. The bands of Jones's gabion also answer the same purpose.

CAMP POLICE.

20. *Camp Police*.—No traffic of any kind should be allowed along the front of a camp, or through the tents. All carts, wagons, and horses should pass through the intervals and along the rear. A place for a market should be selected and named in orders. All persons coming to the camp to sell articles of any kind must be confined to this place, and not allowed to wander about the camp. The camp police should arrest all persons found wandering, and a picquet under arms should remain in the market until it is cleared. The staff-officer should arrange a tariff of prices at which various articles may be sold, and no departure from this should be allowed, all articles being paid for in ready money.

Women of loose character should be carefully excluded from the camp; they are often employed as spies.

The camp police should make rounds at uncertain intervals through the camp, and summarily arrest all who may contravene the orders.

HUT ENCAMPMENTS.

21. *Hut Encampments*.—Encampments made of huts are generally used during the siege or blockade of a fortress, or when troops are occupying a position in which they remain for some time, or during the winter.

Huts may be made simply of clay, mixed with grass and rushes to bind it together, and roofed with rough timber and thatched.

They may be formed of what is termed "wattle and daub," that is, the walls are composed of hurdles daubed over with clay, the roof being composed of hurdles and straw thatch.

They may be formed of circular or rectangular shape as may be found easier to build.

Huts may be formed of planks fastened together by what is termed a Malay hitch. They may also be made partly underground. These huts are said to be unhealthy, but if a drain is made round the hut much of the unhealthiness is got rid of.

Huts are extremely easy to build; a few nails and rough timber, or some rope and timber, are all that is requisite; and, if care is taken to provide for ventilation by leaving small openings under the eaves, there is no reason why the health of the soldier should suffer.

METHOD OF PITCHING A TENT WITH TWO MEN.

No. 1 to be told off as pole man.


No. 2 " " tent man.

No. 1 falls in with a pole in his left hand and mallet with five pegs in his right. No. 2 to cover him with tent and pin bag. When No. 1 is moved to the position his tent is to occupy, No. 2 will follow with the tent and fall in five paces in rear of him. No. 1, after being dressed and having the words "Eyes front" given, will drive a peg upright between his feet into the spot of ground occupied by the bottom of the pole, dropping the pole to his front to do so, he will then take $3\frac{1}{2}$ paces from the centre peg to his front (the way the door is to face), and drive in "the front peg" at an angle of 45 degrees; turn about, station himself at the centre peg, take $3\frac{1}{2}$ paces to

the rear, drive in another, "*the rear peg*" in a similar manner, returning to the centre and following a like course to the right and left; during this time number two will shake the tent out of its bag and spread it out on the ground, door uppermost, top to the rear; he will then unroll the whole of the ropes and see that the door is unhooked, after which he will take the peg bag and distribute its contents in a circle round the four pegs which have been driven in by No. 1, and arrange his mallet, both men will now proceed to the tent, one to the right, and the other to the left of the door, each will take the second rope, counting from the door on each side, and draw the tent on to the ground which it is to occupy, these ropes will both be attached at full length to the "front peg," the men will then count the ropes until they come to the sixth on each side of the door, or the fourth from the ropes already fastened to the front peg, and attach them to the right and left pegs, at full length. No 2 will then count five more ropes, and fasten the last (*i. e.* fifth) to the rear peg at full length. No 1 will in the meantime take up the pole and fit the round end of it in the cap of the tent, the bottom of the pole being to the front. No. 2 will take a mallet and drive the cap on to the pole, when No. 1 will put his head under the door and raise the tent working the bottom of the pole inwards until it comes against the centre peg. He will then run out of the door, mallet in hand, to the assistance of No. 2, who in the meantime will have tightened the five ropes already fastened to the four pegs, and have driven in two or three pegs on the windward side, and fastened ropes thereon; both men will then proceed to drive pegs, and fasten the remainder of the ropes, the pegs being invariably driven in, in line with the seam of the tent, which can be only ascertained by pulling each rope and taking the line accordingly; in all cases the ropes should be tightened when they are put on the pegs. The right, left, and rear pegs will require to be adjusted when all the others are fixed.

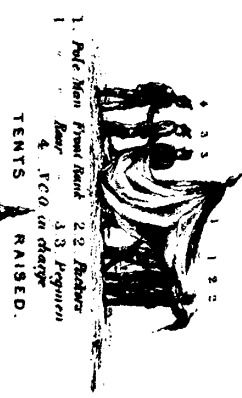
Pegs should be driven as follows:—Determine the spot, turn with back to the tent, stoop, with peg in left hand, and mallet in right, place the peg with point on the ground and head inclined outwards, at an angle of 45 degrees, give a couple of taps with the mallet, then place left toe against the bottom of the peg, stand up and give two or three hard blows with the mallet, which in ordinary ground will be sufficient to drive the peg well home. Should trenches be ordered to be made, make a straight cut into the ground with spade, close to the curtain, all round the tent, and then, at a distance of a foot, cut towards the curtain at an angle of 45 degrees, lift the piece of earth out with the spade, and lay it on the ground close to the trench; the curtain of the tent should always be pegged down into the side of the trench to prevent the water running from the canvas along the floor of the tent rendering the trench comparatively useless.

TO STRIKE A TENT WITH TWO MEN.

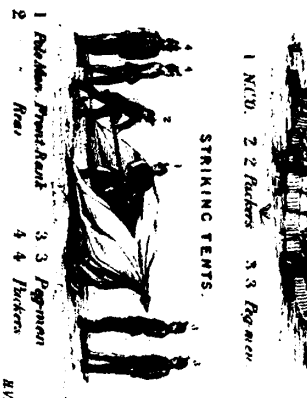
Both men will take off all the ropes but those attached to the front, right, left, and rear pegs. No. 1 will place himself inside the tent at the pole and wait for the bugle when it sounds, he will lift the pole from the ground and run out of the door with it, bottom end first, after which he will separate the pole into two pieces and tie them together. No. 2 in the meantime will have taken up all the pegs other than those to which the five ropes are attached and placed them in the pin bag, and when the tent has dropped, he will take up the remainder of the pegs, and put them with the mallets in the bag and fasten it up; both men will then roll up the ropes, tying each roll close up to the canvas. No. 2 will take the cap of the tent and draw it to the rear, door upwards, both will spread it out neatly in this form . The sides will then be folded to the centre until they meet, and folded again until the breadth required for the depth of the tent bag is arrived at, when No. 2 will fold the head down to the front, about half way, and both will proceed to roll from the head to the bottom, placing their knees on the tent as they roll it. When rolled up tightly No.

2 will hold the bag, No. 1 will lift one end of the roll until it is got into the mouth of the bag, when it will be lifted into a perpendicular position, and both men holding the top of the bag will shake the tent into it, the peg bag will be put inside, and the whole secured at the top, when both men (No. 1 with the pole, and No. 2 with the tent,) will march to the wagon for loading. Much time is wasted by following the red runners on the tent ropes as guides, for pitching a tent neatly, they often come off, and are not properly replaced, whereas by counting from the doors to the back of the tent as herein laid down, the tent must stand true to the front when raised, and also be properly dressed.

RAISING TENTS.

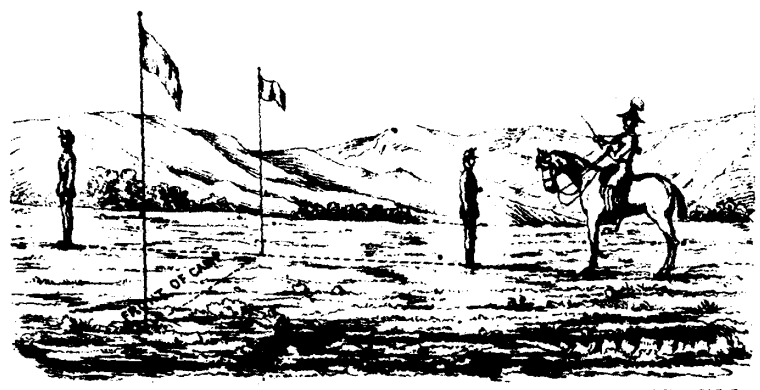


STRIKING TENTS.



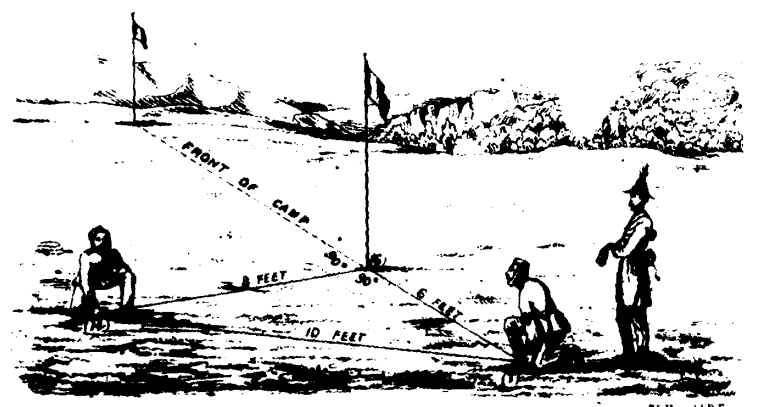
R. U. DAVIS ILL.

LAYING OUT A RIGHT ANGLE.
Second Method.



W. H. H. ILL.

LAYING OUT A RIGHT ANGLE.
First Method.



W. H. H. ILL.

4

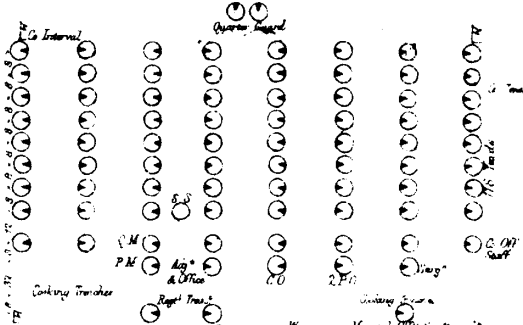
PLAN OF ENCAMPMENT FOR A BATTALION OF INFANTRY.
N°1 OR OPEN ORDER.

BATTALION OF INFANTRY.

WAR STRENGTH & DISTRIBUTION

Officers	31	78
Staff Sergeants	10	1
Guard		4
Regimental Transports	24	2
Cook or dr	1	
Mounted Off.	7	1
Servants		
Companes	960	64
Cavalry	64	5
Total	1097	90 tents

OFF. Men



- 17 Wagons allowed 9 ft each
- 11 Officers Horses 64
- 48 Draught Horses 44

The measurements are in yards from Tent Pole to Tent pole.
As open order the interval between the rows of tents is 10 yards.
The circles represent the circumference of the tents, and on the Tent & transport is 10 yards from the interval.
Distances according to ground level of the Tent.
Front according to strength of Companies.
Depth 100 yards.
Should the depth of Camp be measured in paces 10 paces will be the distance between Companies Tents.

5

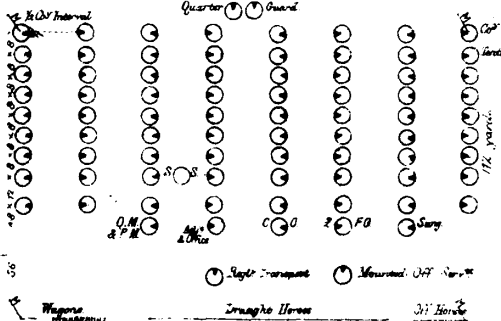
PLAN OF ENCAMPMENT FOR A BATTALION OF INFANTRY.
N°2 OR HALF ORDER.

BATTALION OF INFANTRY

WAR STRENGTH & DISTRIBUTION

Officers	31	78
Staff Sergeants	10	1
Guard		4
Regimental Transports	24	2
Cook or dr	1	
Mounted Off.	7	1
Servants		
Companes	960	64
Cavalry	64	5
Total	1097	90 tents

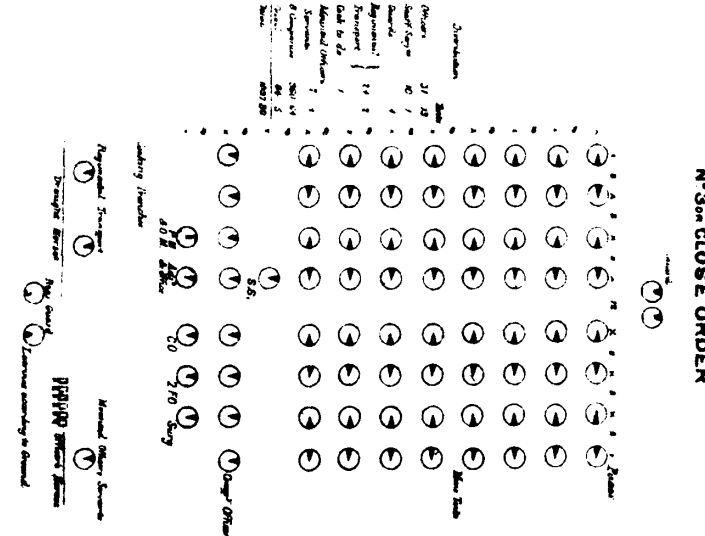
OFF. Men



- 17 Wagons allowed 9 ft each
- 11 Officers Horses 64
- 48 Draught Horses 44

The measurements are in yards from Tent Pole to Tent Pole. At half order the interval between the rows of tents is 5 yards.
The circles represent the circumference of the spaces occupied by the Tent & their poles to show the intervals.
Distances according to ground level of the lines. Front according to the strength of the companies depth 100 yards. Should the depth of the Camp be measured in paces 10 paces will be the distance between the Companies Tents.

6 PLAN OF ENCAMPMENT FOR A BATTALION OF INFANTRY
N°3 OR CLOSE ORDER



10
PLAN OF ENCAMPMENT FOR A BATTERY OF ROYAL ARTILLERY.
NO. 1 OPEN ORDER
 10

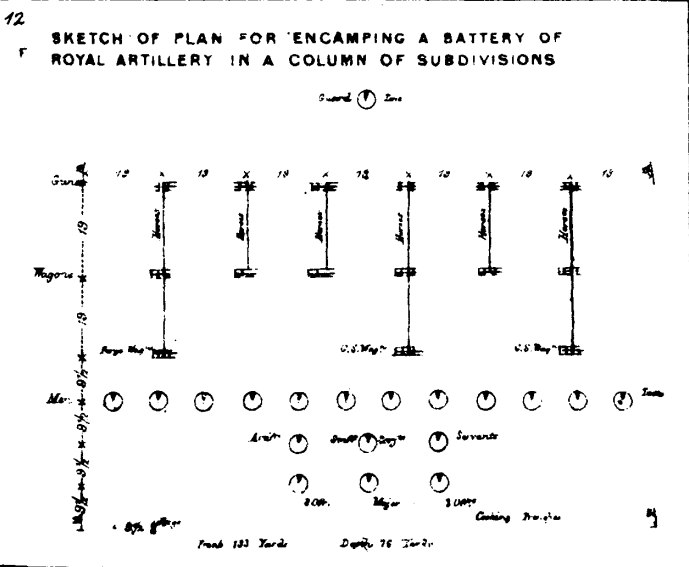
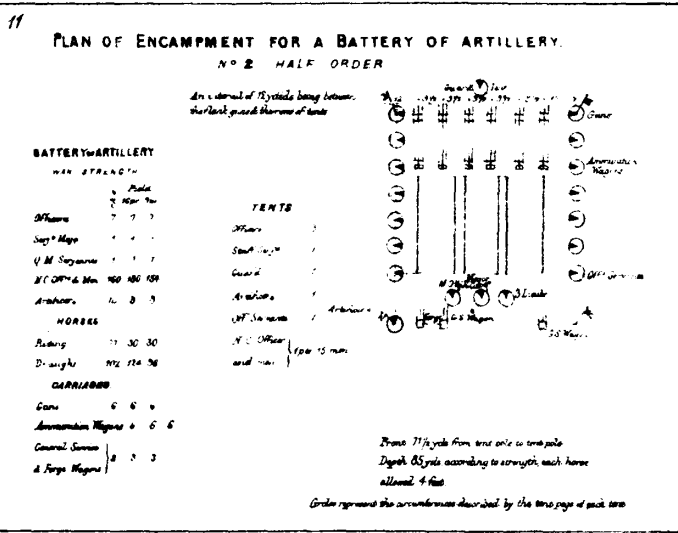
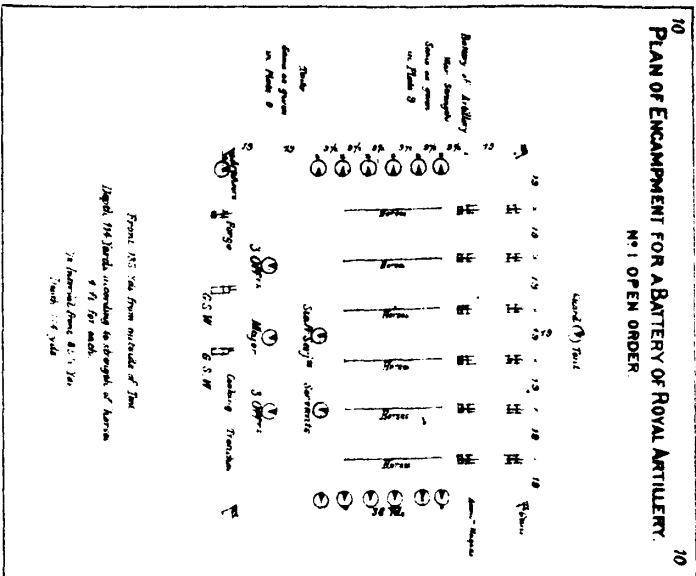


Fig. 1. MAKING STRAW MATS

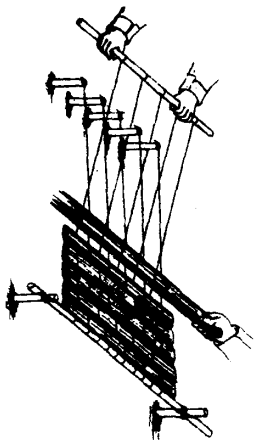


Fig. 2. WALL OF STRAW



Fig. 1. BIVOUAC OF BRANCHES OF TREES.

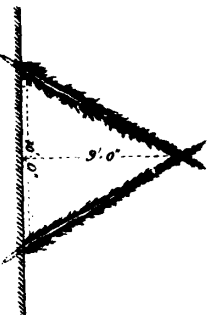


Fig. 2. SECTION OF BIVOUAC USED BY THE FRENCH DURING SORTIES FROM PARIS. THIS ARRANGEMENT IS BAD.

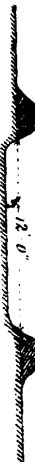


Fig. 3. SECTION OF BIVOUAC SHEWING A BETTER FORM.

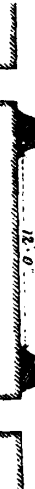


Fig. 4. SECTION OF BIVOUAC MADE BY THE FRENCH DURING SORTIES FROM PARIS.



Fig. 4 would be improved by the trench being outside and the ground not disturbed.

BIVOUAC IN COLUMN OF COMPANIES ON THE GROUND OCCUPIED BY THE COLUMN.

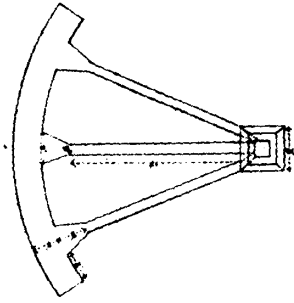


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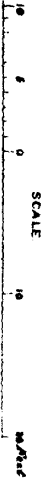
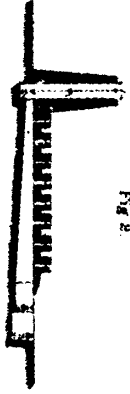
PLATE I

BROAD ARROW
KITCHEN.

FIG. 1



SECTION OF ABOVE.
FIG. 2

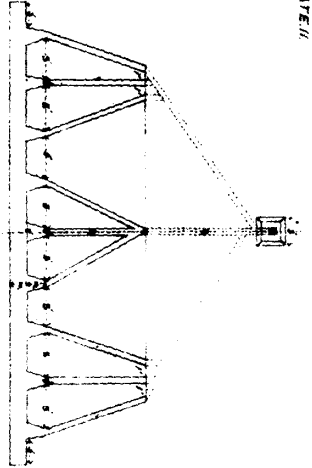


17

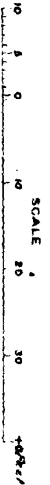
PLATE II

TRIPLE ARROW
KITCHEN

FIG. 3



SECTION ON A. B.



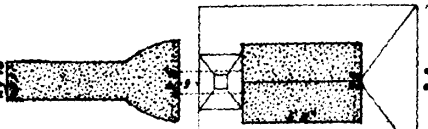
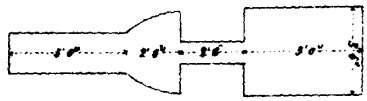
18

FIELD OVEN

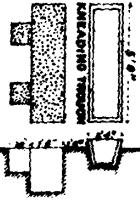


SECTION

END ELEVATION



PLAN



SECTION OF ARCH

Addition to Appendix No. 1.

MILITARY DISTRICT NO. 11.

DEPUTY ADJUTANT GENERAL'S OFFICE,
VICTORIA, B. C., January 10th, 1877.

SIR,—I have the honour to transmit herewith my Annual Inspection Report of Military District No. 11, for the information of the Major-General Commanding. The corps which constitute the militia force in this Military District are as follows, viz :—

	Officers.	Non Com. Officers and Privates.
Victoria, No. 1 Company.....	3	40
“ No. 2 “	3	40
“ Band		10
New Westminster Rifles, No. 1 Company.....	3	40
“ “ Seymour Artillery.....	2	30
“ “ Assistant Surgeon.....	1	0
Nanaimo Rifles, No. 1 Company.....	3	40
Total.....	15	200

Nanaimo Rifles

I purposed commencing my annual inspection at Nanaimo, and with that view wrote to Captain Bryden on the 20th November, 1876, fixing the date of my inspection for the 29th of that month, but on my arrival at that place I regret to have to state that I found the matter had entirely escaped his memory, and that no notice had been given to either officers or men of the corps, and that, in consequence, it was utterly impossible for me to obtain a fair muster in the time at my command, and I was, therefore, obliged to leave Nanaimo without having obtained the object of my visit. Captain Bryden excused himself on the grounds that, owing to the sickness of one of his principal assistants in the Vancouver Coal Mining Company, of which he is one of the head managers, an unusual amount of duty had devolved upon him, and frankly admitted that, in consequence, he had totally forgotten to even mention the purport of my letter to the other officers of the corps, who assured me that, had he done so, the men would have paraded in considerable strength, the corps being nearly up to its establishment; and although not having performed any drill during the past year, owing to the want of an efficient instructor, they were still desirous of showing that they were yet in existence actually, as well as on paper, and that they had not quite forgotten the instructions imparted to them upwards of two years ago by Gunner's Mate Samuel Gill, of H.M.S. "Myrmidon."

Captain Bryden expressed a wish to resign his position as captain of the company, stating, as his reason for so doing, that he could not possibly devote the necessary time to militia affairs consistently with justice to his employers, whose work occupied every moment of his time and left him but little leisure.

I consequently agreed to forward his resignation, with a recommendation that it be accepted at once.

I have not since heard from him, on the subject but expect to do so immediately.

Victoria Rifles.

I inspected the two companies of Victoria Rifles on the 2nd December, in the Drill Shed at Victoria, and although the muster was rather a poor one numerically, I cannot but speak highly of the efficiency of the men who were present on that occasion, as the drill was most satisfactory, and the arms, accoutrements, and clothing everything that could be desired.

The term of service of these companies having now expired, I have placed service rolls in the hands of the officers commanding, and I have much confidence in stating that, by the 28th February proximo, they will be re-organized to their full strength, as most of the men now present have signified their readiness to re-join for another term, and there are many young men desirous of enrolling themselves upon the new list.

Unless instructed by the Major General to the contrary, I purpose allowing these companies to return to their original strength of fifty (50) men each on the new enrolment, as, owing to the migratory nature of the class who chiefly constitute the militia of this District, but more especially of Victoria, it is almost impossible to secure fair musters unless the nominal establishment of the corps is somewhat in advance of its actual requirements in the point of numbers. This may be readily observed by a glance at the Inspector's report herewith enclosed, as well as on reference to the previous ones forwarded from time to time.

While on the subject of the Victoria Corps, I may take this opportunity of mentioning, that the band has made considerable progress during the last year, and that it now comprises eleven very fair performers. It was up to the strength of twelve a short while ago, but I regret much to say that one of the principal performers, Mr. Bushell, died recently, and we have not yet replaced him.

New Westminster "Rifles."

I was unable to reach New Westminster in time to make my inspection there on the days first arranged, for reasons explained in my letter of the 4th instant, and I was consequently a week later in completing my tour, than I had at first anticipated.

I inspected the rifle corps at that place on the 14th December, and have to report most favourably on the appearance and efficiency of the company, as well as upon the state of their arms and accoutrements.

Numerically, however, I was scarcely satisfied with the muster, as there were only twenty non-commissioned officers and men present on parade on that occasion.

The corps, however, is some ten men below its authorized strength of forty, and as those even who were present expressed their intention of resigning at the end of their term of three years' service, which expired yesterday, I need scarcely report further on that corps at present, but refer you for particulars and explanation on this point to my letter of the 2nd instant.

I am bound, however, to state that I have always considered the New Westminster Rifle Company second to none in the district, and I regret exceedingly the circumstances which have led to its dissolution.

As I informed you in the letter above referred to, I have every confidence that the men will again enrol if a new company be formed, the officers of which shall be selected, if not by themselves, at least with their full approval and I know of no fairer test that could be possibly applied to the solution of the difficulty existing at present, as the men constituting the corps principally consist of the most respectable citizens of New Westminster, and are thoroughly capable of forming a correct judgment in such matters as those brought confidentially to the notice of the Major General commanding in my report of the 2nd January.

Seymour Artillery.

I ordered the Seymour Artillery to parade at the guns on the 15th December, and with a view to judging of their proficiency, I instructed Lieutenant commanding,

J. T. Scott, to provide a target on the Fraser River, at a selected point, and to provide his half-battery with shot and shell, of each five rounds. He did so, but unfortunately a dense fog prevailing the entire day, and in fact during the whole of my stay at New Westminster, I was unable to carry out my project in this respect.

Lieutenant Scott, however, at my request first put the detachment through garrison gun drill without ammunition, and then fired six rounds of blank, all of which was performed in a very fair manner, considering the slight opportunities they have had for practising, no ammunition having been supplied to them until very recently, and the friction tubes, the only ones procurable, being entirely unsuited to the guns.

I directed Lieutenant Scott to carry out his practice as soon as the weather would permit, and furnish me with a report on the subject. This he promised to do, but as the weather has since continued unfavorable at New Westminster, he reports that he has not yet been able to carry out my instructions, but that he will do so as soon as possible.

General Subjects.

The target practice has not been carried out this year in a very satisfactory manner by any of the companies in this district; only two at Victoria, in fact, having even attempted it, and they only to a very limited extent indeed.

I need scarcely state that the principal cause to which this is attributable has been the reduction of the allowance of ammunition from forty to fifteen rounds per man.

I must also remark that on the whole I have not been quite satisfied with the slack musters, both at inspection this year, and also at the ordinary company's drills; but I think I am justified in attributing this also in a great measure to a similar cause. I may also add with truth, that in this Military District at least, the uniform is most distasteful to the men, the forage cap being particularly so, and the trousers also, though perhaps not quite to the same extent.

The want of a drill shed and an instructor for a short time, are much felt at Nanaimo, and the fact of the cost of the construction of the rifle range at that place having been left upon the shoulders of the officers of the corps, without any assistance from the Dominion Government, has no doubt militated considerably against the popularity, and therefore success of the militia organization of that locality; and so far as the rifle range is concerned, the same may be stated as the cause of much dissatisfaction at New Westminster, where a capital rifle range has been constructed, the whole expense of which has fallen upon the corps fund, amounting to somewhat over one hundred dollars in each case.

Were these sums refunded to them, I have not the slightest doubt that it would engender a much more friendly feeling than that which now exists; and I feel satisfied that such trivial sums would be well expended in that direction.

The introduction of gas into the drill shed at Victoria has been a marked improvement, and has caused general satisfaction amongst the militia here, and the two hundred dollars expended upon the drill shed at New Westminster has been sufficient, at all events, to thoroughly secure the foundation and render the building practically useful, which, I may say, it was not previously.

I have the honor to be, Sir,
Your obedient servant,

C. F. HOUGHTON, *Lieut.-Colonel,*
D. A. G., Military District No. 11

The Adjutant General,
Head Quarters, Ottawa.

REPORT

OF THE

MINISTER OF AGRICULTURE

FOR THE

DOMINION OF CANADA,

FOR THE CALENDAR YEAR

1876.

Printed by Order of Parliament.



OTTAWA:

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.

1877.

LIST OF APPENDICES.

1.	Report of Quebec Immigration Agent.....	<i>L. Stafford.</i>
2.	do Montreal do	<i>J. J. Daley.</i>
3.	do Toronto do	<i>J. A. Donaldson.</i>
4.	do Hamilton do	<i>John Smith.</i>
5.	do Ottawa do	<i>W. J. Willis.</i>
6.	do Kingston do	<i>R. Macpherson.</i>
7.	do London do	<i>A. G. Searle.</i>
8.	do Sherbrooke do	<i>H. Hubbard.</i>
9.	do Winnipeg do	<i>W. Hessler.</i>
10.	do Halifax do	<i>E. Clay.</i>
11.	do St. John, N.B. do	<i>R. Shiers.</i>
12.	do Grosse Isle Quarantine Medical Officer	<i>P. Montambert.</i>
13.	do Pictou, N.S. do do	<i>W. E. Cooke.</i>
14.	do St. John, N.B. do do	<i>W. S. Harding.</i>
15.	do Travelling Agent on trains	<i>John Sumner.</i>
16.	do Halifax Quarantine Medical Officer.....	<i>W. N. Wickwire.</i>
17.	do Antwerp Emigration Agent	<i>Richard Berns.</i>
18.	do Investigations in Manitoba.....	<i>C. J. Whitlams.</i>
19.	do do do	<i>J. W. Down.</i>
20.	do Icelandic Immigration Agent	<i>W. C. Krieger.</i>
21.	do Ocean Mail Officer	<i>C. H. Tiltstone.</i>
22.	do Special Immigration Lecturer.....	<i>Rev. L. Taylor.</i>
23.	do Inspecting Physicians, Quebec.....	<i>A. Rowand & C. De Guise.</i>
24.	do Special Immigration Agent, Detroit.....	<i>B. Whiteford.</i>
25.	do Dufferin Immigration Agent.....	<i>J. E. Tétu.</i>
26.	do Quebec Cattle Quarantine Inspector.....	<i>D. McEachron.</i>
27.	do St. John, N.B., do do	<i>R. Bunting.</i>
28.	do Hamburg Immigration Agent.....	<i>J. G. Klotz.</i>
29.	Report on Icelandic Colony.....	<i>John Taylor.</i>
30.	Report of do Agent.....	<i>S. Jonassen.</i>
31.	Report on Canadian Immigration to Manitoba.....	<i>C. Laline.</i>
32.	Report of Ocean Mail Officer	<i>W. E. Bovee.</i>
33.	do do	<i>S. T. Green.</i>
34.	do Halifax Cattle Quarantine Inspector.....	<i>A. McFatridge.</i>
35.	do Assistant Icelandic Agent on Small-pox	<i>S. Jonassen.</i>
36.	British Mail Officer's Report	<i>A. Walmesley.</i>
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38.	do European Agents.....	
39.	Special Immigration Agent's Report, Chicago.....	<i>A. Halvorsen.</i>
40.	Manifests of goods shipped to Australian Exhibition	

REPORT
OF THE
MINISTER OF AGRICULTURE.
FOR THE
CALENDAR YEAR 1876.

To His Excellency the Right Honourable Sir Frederic Temple, Earl of Dufferin, Viscount and Baron Clandeboye of Clandeboye, in the County of Down, in the Peerage of the United Kingdom, Baron Dufferin and Clandeboye of Ballyleidy and Killeleagh, in the County of Down, in the Peerage of Ireland, and a Baronet, Knight of the Most Illustrious Order of St. Patrick, and Knight Commander of the Most Honourable Order of the Bath, Governor General of Canada, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY,—

I have the honour to submit the Report of the Department of Agriculture for the calendar year 1876. It has necessarily been made, as heretofore, for the calendar instead of the fiscal year, in view of the nature of the subjects reported on.

I. GENERAL REMARKS.

The operations of the Department, until December, took place under the administration of my predecessor, the Honourable L. Letellier de St. Just.

Two Acts were passed during the last Session of Parliament, concerning the working and labours of this Department. One, the 39 Vic. cap. 13., being "An Act to make provision for the collection and registration of the Criminal Statistics of "Canada," and the other, 39 Vic. cap. 30, being "An Act to amend the Insolvent Act "of 1875," in which latter Act provision is made for the collection and publication of Statistics in relation to the proceedings of Insolvency throughout Canada.

As these Statistics are to begin each year on the 1st of October, and as a part of the year 1876 had lapsed when these Acts were sanctioned, the first collection and publication of the said Statistics will of necessity appear for the first time in the next Departmental Report.

The following is a statement of the number of letters received and sent by the Department, during the year 1876.

Months.	Received.	Sent.
January	1,414	1,222
February.....	1,241	1,523
March	1,387	1,504
April	1,248	1,337
May.....	1,488	2,265
June	1,254	1,357
July.....	1,663	1,428
August.....	1,350	1,536
September.....	1,332	1,656
October.....	1,242	1,639
November.....	1,325	1,435
December.....	1,618	1,608
	16,562	18,512

The following table shows a statistical statement of the business of the Department from the year 1864 to 1876, inclusive:—

Years.	Letters Received.	Letters Sent.	No. of cases of Patents, Copyrights, and Trade Marks.	Total number of Immigrants.
1864	5,422	5,152	181	40,649
1865	6,694	7,638	200	47,103
1866	7,435	8,250	337	51,794
1867	7,571	10,679	840	57,873
1868	8,696	10,299	643	71,448
1869	9,516	13,654	965	74,365
1870	11,442	20,078	1,110	69,019
1871	18,416	21,709	2,035	65,722
1872	20,271	30,261	2,215	89,186
1873	22,216	31,786	3,204	99,109
1874	17,970	22,673	3,923	89,022
1875	15,623	17,927	4,072	43,458
1876	16,562	18,512	4,389	36,549

II. AGRICULTURE.

*71 + pp
Faint line from 1871/72*

In the Departmental Report of last year my predecessor mentioned the presence in Europe of epizootic disease, and alluded to the anxiety felt by breeders and stock owners about the possibility of its introduction into this country. The circumstances, however, were not then such as to warrant the adopting of quarantine measures, which, of course, always entail great embarrassment and expense, both on individuals and the public.

*of the Bill
to quarantine and*

The watch which was continually kept on the progress of the disease, and the probability of its introduction into Canada, led my predecessor to adopt such preventive measures as seemed necessary during last season; the wisdom of which was proved by the fact that cases of the disease did occur, and that animals attacked by it were stopped, and thus prevented from causing any danger of the epidemic spreading in the country.

These quarantine measures were adopted in time for the opening of the navigable season, in virtue of an Order in Council dated 20th day of April, 1876, pursuant to the 32 and 33 of Vic., intituled "An Act respecting contagious diseases affecting animals."

In virtue of that Order in Council, the importation of live stock coming from Europe into the Provinces of Nova Scotia, New Brunswick and Quebec was prohibited, except through the Ports of Halifax, St. John and Quebec. It was further provided that a quarantine should be established at each of those ports, and that all cattle, sheep and swine arriving in Canada through any of them should be inspected by the inspecting officer to be appointed for each port.

These officers were empowered to visit all boats, ships, vessels, cars or vans; to superintend the landing of animals; to prevent or allow the said animals to enter the country; to disinfect or destroy goods and effects of dangerous character, and otherwise guard the country against any introduction or spreading of the disease.

Accordingly, the following inspectors were appointed for the ports thus constituted cattle quarantines:—

Mr. D. McEachran, with Mr. A. Waddell, as Inspectors for the Port of Quebec; Mr. R. Bunting for the Port of St. John; and Mr. A. McFatridge for the Port of Halifax; and places for the reception of cattle, should any necessity of detention arise, were provided.

In the Ports of Halifax and St. John the proceedings of the season were restricted to being on the alert, as nothing was required at those ports; but the proceedings at the Port of Quebec have attained some magnitude, as may be seen more amply by referring to Mr. McEachran's report in the appendix herewith.

The Quebec cattle quarantine was established at Point Levis, in one of the forts, the vacant space of which was fitted for the reception of animals. The number of animals which passed through the Point Levis quarantine was 448, and it is gratifying to say that, with one exception, the proceedings have met with the entire approval of the importers.

A few animals which escaped inspection at Quebec, were inspected at Montreal on the arrival of the steamships conveying them.

The expenses of this quarantine amount to \$2,249.24.

The Potato Beetle has this year continued its progress eastward, reaching the valley of the Ottawa and extending north to a higher latitude than heretofore. A communication from the Imperial Government as regards the appearance of a few of these insects in Germany was the subject of an investigation.

The facts elicited were to the effect that some of these insects had been discovered creeping on the deck or amongst the cargo of steamers bound to Europe, and that one individual insect was caught at Bremen on bales of goods recently discharged from a steamer. Earl Carnarvon's despatch was in effect to ascertain what precautionary measures were or could be taken on this side of the Atlantic against the introduction of this pest into Europe, and what measures could be adopted for its destruction. The Departmental Report, answering these enquiries, was briefly descriptive of the habits and mode of transport of the insect; and concluded by indicating such measures as can be practically adopted against the introduction and spread of the scourge. These remedies are: First, searching for and crushing every potato beetle wherever found. Second, frequent visits to the potato fields to search for the eggs deposited on the underside of the leaves of the potato vine. Third, watching for the presence of the larvæ on the buds and on the leaves of the plant in order to destroy them by means of Paris green, the only substance yet discovered to be effectually operative on a large scale for the destruction of the insect in its larval state.

The means, in fact, of battling against the infection when it has invaded a country are twofold and simple:—

Hand-picking of the insects and their eggs to destroy them; and

Poisoning the larvæ by means of the Paris green mixed with water, or any appropriate dry powder.

As regards the means of preventing the exportation from this continent and the introduction into Europe of the insect, no measures can be recommended other than a general instruction to public officers and employées of the ports, to look for and destroy any of these insects which may be observed on the wharves, sheds, and packages of goods to be embarked or disembarked on board ship. In this watch a general appeal might also be made to all persons having to deal with shipping for assistance in the execution of such preventative measures.

It is probable that the invasion of the potato beetle will extend next year, and afterwards further east till it has reached the coast, as it has already done in the United States. The extent of the devastation is sure to result in a disastrous destruction of the potato crops, unless the means hereinbefore mentioned are largely resorted to by the population.

Your Excellency is already fully aware of the success of the Canadian Exhibition at the International Philadelphia Exhibition of 1876. The number and the quality of the exhibits of Canadian products and industry shown at this World's Fair have been the subject of the complimentary comments of visitors of all nations, and of eulogy in various reports made of that great concourse.

The Commission appointed by Your Excellency for the management of the Canadian Exhibition at Philadelphia, of which my predecessor was *ex officio* the President has made a special report, to which reference may be had for all the transactions connected with their proceedings.

It was determined during the autumn, in consequence of representations made to the Government, by a deputation interested in manufactures and trade, to assist a Canadian representation at the Metropolitan Exhibition to be held at Sydney, New South Wales, in April next. This action was taken under authority of an Order of Your Excellency in Council.

Mr. John Lowe, the Secretary of this Department, Mr. W. H. Frazer of Toronto, and Mr. James Brown of Montreal, were appointed, in October, to superintend the selection of articles for the exhibition.

Information was conveyed by circular to the effect that manufacturers and others desirous of sending samples of Canadian products or industry to Sydney, could do so by the "Ocean Gem," advertised to sail from Montreal on the 28th October, or by a vessel advertised to sail from New York on the 25th November; the Canadian Government paying freight on all approved exhibits from the ports of Montreal and New York respectively.

Although the time for making preparations and selections of articles was necessarily short, the interest excited in the proposed exhibition was so considerable that a large number of applications were made, as well from Exhibitors at the Philadelphia Exhibition as from manufacturers in the Provinces of Ontario, Quebec and the Maritime Provinces.

In making the selections, or rather, in more precise language, in admitting the samples of manufactures to be sent forward for exhibition, it is proper to explain that there was no precise information available as to the styles of manufactures or articles that would be suitable for Australian trade. Recourse was therefore had to a careful study of manifests of shipments from the ports of Boston and New York, extending over a period of the last fifteen months; also to a study of the Tables of Imports of the Australian Colonies. And within the limit of articles and manufactures which it was found were regularly exported from American ports, or which were found from the Tables of Imports to be largely imported into the Australian Colonies, the Canadian manufacturers were allowed a large discretion as to the samples they desired

to send to Sydney, the risk to the individual manufacturers not being large, and the cost of freight to the Government moderate. It may further be stated that valuable information on this head was obtained from Australians at the Philadelphia Exhibition, who indicated many of the Canadian exhibits as being desirable to send, and these were accordingly sent in almost every such case.

Two hundred and eight cubic tons of exhibits were sent to Sydney from Montreal by the "Ocean Gem," and three hundred and forty-one cubic tons from New York by the "Escort," of which one hundred and thirty-two cubic tons were sent from Ontario by the Suspension Bridge, and two hundred and nine cubic tons from the Exhibition at Philadelphia.

The Department was not in any case bound to return the exhibits to Canada. On the contrary, the exhibitors were all informed that all articles would be sold at Sydney after the Exhibition for account of the owners, they being left free, and, in fact, invited to select their own modes of disposing of their property; it being understood that, in any case in which this was not done, the Canadian Commission at Sydney would take the best means to dispose of the exhibits for account of the owners. A form of application was signed by each exhibitor, which constituted an agreement on his part that all articles should be sold at the close of the Exhibition.

It was found impossible to place in the hold of the "Escort" all the exhibits from Philadelphia, and a few of the cases had to be held over to be sent forward by the "Boynton," to sail at the latter end of January. This vessel would not arrive in time for the beginning of the Exhibition, but was expected to do so before its close, and special assurances were received from Mr. Jules Joubert, the Secretary of the Sydney Exhibition, that exceptional arrangements would be made for any Canadian exhibits which circumstances might require, and every possible facility be afforded for an adequate and proper display.

A copy of the manifests of the exhibits sent to Sydney is furnished in the last Appendix to this Report.

The Hon. John Young was appointed Executive Commissioner, assisted by Mr. James Brown of Montreal. Mr. Augustus Morris, who was the Executive Commissioner of New South Wales at the Philadelphia Exhibition, together with the Hon. John Hay, and Messrs. Walter Lamb and Thomas Sutcliffe Mort, of Sydney, were appointed Honorary Commissioners.

III.—IMMIGRATION.

In considering the Immigration to Canada during 1876, it is well in the first place to take the following statement of all arrivals, both of Immigrant passengers and Immigrant settlers who have entered the Dominion from 1868 to 1876, inclusive:—

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.
Via the St. Lawrence.....	34,300	43,114	44,475	37,020	34,743	36,901	23,894	16,038	10,901
Via Suspension Bridge and In- land Ports.....	36,511	30,326	23,857	27,365	49,130	50,578	39,904	18,322	13,203
Maritime Province Ports.....	637	925	687	1,337	5,313	2,659	2,114	959	1,311
Entered at Custom Houses with settlers' goods.....						8,971	14,110	8,139	11,134
Totals	71,448	74,365	69,019	65,722	89,186	99,109	80,022	43,458	36,549

The arrivals by the St. Lawrence route from 1854 to 1876, inclusive, are shown in the following table:—

1854.....	53,180
1855.....	21,274
1856.....	22,439
1857.....	32,097
1858.....	12,810
1859.....	8,778
1860.....	10,150
1861.....	19,923
1862.....	22,176
1863.....	19,419
1864.....	19,147
1865.....	21,355
1866.....	28,648
1867.....	30,757
1868.....	34,300
1869.....	43,114
1870.....	44,475
1871.....	37,020
1872.....	34,743
1873.....	36,901
1874.....	23,894
1875.....	16,038
1876.....	10,901

The numbers of immigrants who arrived in the years 1875 and 1876, and reported by the Agents of the Department to have stated their intention to settle in Canada, were as follow :—

	1875.	1876.
At Quebec.....	12,043	7,063
“ Suspension Bridge.....	5,145	5,696
“ Halifax, N.S.....	709	506
“ St. John, N.B.....	250	136
“ Portland, Me		605
“ Manitoba, arrivals from United States, distinguished from those entered as immigrants at other ports in Canada, and migrants from Canada.....	1,096	493
	<u>19,243</u>	<u>14,499</u>
Reported with settlers goods by Custom Houses	8,139	11,134
	<u>27,382</u>	<u>25,633</u>
Total Settlers.....	27,382	25,633

These numbers of arrivals of immigrants are less than those reported to have been distributed for settlement at the ports of Montreal, Sherbrooke, Ottawa, Kingston, Toronto, Hamilton, London, Ont., Halifax, St. John, N.B., and Winnipeg.

The fact of the aggregate of the numbers reported to have been settled by the Agents at these stations, being greater than those in the above tabular statement, is accounted for by the moving of immigrants from one station to another, and being entered in the books at two or more stations.

The immigrant passengers reported to have passed through Canada for the United States, were 8,091, against 9,214 the previous year. The immigrant passengers who go through Canada to the Western States, enter, for the most part at the Suspension Bridge, the number of such passengers being, in 1876, at that point, 7,014, and at Quebec, 1,077.

The value of the personal effects of immigrants entered at the Customs Houses with settlers' goods, amounted in 1876 to \$358,957, against \$435,054 in 1875. The following statement shows the numbers arrived at the several ports, and the value of the settlers' goods entered in 1876:—

	Number of Arrivals.	Value of Effects.
Montreal....	3,008	\$ 74,154
Ottawa, and ports within its agency....	1,665	47,641
Kingston.....	1,521	33,322
Toronto, and ports within its agency.....	1,802	92,596
London	2,390	106,579
St. John.....	748	4,665
	<u>11,134</u>	<u>\$358,957</u>

No account is taken of the value of the effects, tools, &c., brought into the country by the ordinary immigrants; but it is no doubt considerable. The amount of cash brought by immigrants in 1876, as ascertained by Agents, was \$327,248; thus making with the Customs a total value of over \$686,205.

The immigrants who enter Canada are divided into two classes,—those who come with intention to settle, and those who simply make use of the Canadian route for the purpose of proceeding to the Western States. They may therefore be properly described as immigrants and immigrant passengers. The following table shows the relative numbers of these, as they have been reported from 1866 to 1876, inclusive:—

Years.	Immigrant Passengers for Western States.	Immigrant Settlers in Canada.
1866	41,704	10,091
1867	47,212	14,666
1868	58,683	12,765
1869	57,202	18,530
1870	44,313	24,706
1871	37,949	27,773
1872	52,608	36,578
1873	49,059	50,050
1874	40,649	39,373
1875	9,214	27,382
1876	10,916	25,633

It has been explained in the previous reports of this Department that the figures in the foregoing table are taken from the reports of the Dominion Agents; and they are obtained in circumstances which make it impossible to vouch for accuracy. These figures include the special Mennonite and Icelandic immigration during the year; the former numbering 1,357 and the latter 1,156.

The decline in the total number of immigrant arrivals in 1876, as compared with any of the previous years since confederation, was very marked, but it will appear, from an examination of the series of figures, that the decline in the numbers of immigrants for the Western States has been greater than that in the immigrant settlers in Canada.

It is to be remarked that the decline in immigration since 1873, has been owing to the general fact of the commercial and industrial depression which has prevailed over the whole of this continent and a great part of Europe; and that the diminution in the numbers of emigrants from European ports and immigrants to this continent has been relatively greater than the decline in the numbers of immigrant settlers in Canada.

During 1876, the same as in the previous year, the bulk of all the immigrants brought to Canada, by the exertions of the Department, were agricultural labourers and their families. The whole of all who came of this class found ready employment, and at some of the stations in Ontario, the demand for them was not satisfied.

There have been no reports of farm labourers in the country parts being out of employment, the industrial and commercial depression having only affected the employment of artizans and labourers in towns. The class of artizans from France, resident in Montreal, many of whom were only fitted for special pursuits, suffered in a particular manner; and numbers of these have sought repatriation.

The following statement shows the origins of the Immigrants who arrived at Quebec from 1870 to 1876 inclusive:—

	1870.	1871.	1872.	1873.	1874.	1875.	1876.
English	20,934	17,915	14,867	18,004	13,298	7,582	4,989
Irish.....	2,858	2,980	3,410	4,336	2,650	1,449	808
Scotch	3,279	3,426	4,165	4,665	2,562	1,816	1,009
German	595	9,300	764	739	462	176	104
Scandinavian.....	16,780	2,999	10,148	6,447	1,407	1,201	1,157
French and Belgians.....			1,366	2,634	1,632	534	289
Other origins.....	29	400	23	76			20
Icelanders.....					351	22	1,167
Mennonites.....					1,532	3,258	1,358
Russians.....							20
Totals.....	44,475	37,020	37,743	36,901	23,894	16,038	10,901

And the following, the trades and calling of the steerage male adults, landed at Quebec for the same years:—

	1870.	1871.	1872.	1873.	1874.	1875.	1876.
Farmers.....	4,144	2,989	2,336	1,470	1,763	1,188	510
Labourers.....	12,248	11,463	6,189	6,202	4,259	3,863	2,796
Mechanics.....	1,717	1,674	6,809	7,662	2,773	977	491
Clerks and Traders.....	146	89	79	62	32	7	13
Professional men.....	10	4	14	7	1		
Totals.....	18,265	16,221	15,427	15,403	8,828	6,035	3,810

The statements have reference only to the Port of Quebec, the Department having no means of making similar classifications at the inland ports of the Dominion.

The following is a Comparative Statement of the numbers of immigrants (chiefly children) brought to Canada by the aid of charitable societies and individuals during the last four years:—

	1873.	1874.	1875.	1876.
Feltham Reformatory.....	20	7	13	.....
Red Hill.....	12	10	5	.....
Miss Macpherson.....	360	361	234	179
Mr. Middlemore.....	30	50	78	71
Miss Rye.....	231	192	.....	.....
East London Family Emigration Fund of Hon. Mrs. Hobart	242	27	25	14
Brighton Industrial School.....	24	.....	.....	.....
Boys' Home, Hampstead.....	24	.....	.....	.....
Children's Home, London.....	56	.....	43	.....
F. McFarland.....	72	.....	.....	.....
Rev. M. Nugent, Liverpool.....	41	.....	2	1
Seamen's Orphanage, Liverpool.....	.....	.....	.....	18
T. S. Fletcher, Dublin.....	4	.....	4	4
Wandsworth Institution, London.....	8	.....	6	.....
Rev. M. O'Leary, Enniskillen.....	.....	1	.....	.....
Reformatory School, London, Rev. Mr. Burgess.....	.....	41	.....	.....
Madame Von Koerber.....	.....	185	.....	.....
Rev. Mr. Williams.....	.....	19	.....	.....
English Agricultural Labourers' Union.....	.....	1,267	.....	.....
Miss Fletcher, Liverpool.....	.....	49	12	.....
South Dublin Union.....	.....	11	15	.....
Rev. Mr. Stevenson.....	.....	48	.....	.....
Archbishop of Westminster's Schools.....	.....	25	.....	.....
Hert's Reformatory.....	.....	.....	3	.....
Middlesex School.....	.....	.....	2	.....
Ready Oak School, London.....	.....	.....	2	.....
Boys' Home, Kent.....	.....	.....	2	.....
Catholic Emigration Committee.....	.....	.....	39	13
By-Fleet School.....	.....	.....	5	.....
Boys' Refuge, London.....	.....	.....	15	.....
Kingswood Reformatory, Bristol.....	.....	.....	.....	3
Totals.....	1,124	2,293	505	303

In consequence of certain statements made by Mr. Doyle in the report of his inspection to the Local Government Board, respecting children brought out to this country by Miss Rye and Miss Macpherson, and placed in situations by them—many of these children having come from workhouses in the United Kingdom—it was requested by a Committee of Parliament that a house to house inspection of these children should be made, under the control of this Department. Such special inspection was accordingly made under the authority of an Order in Council. Messrs. Donaldson, Wills, Macpherson and Clay, Immigration Agents of this Department, were instructed to make such inspection in the Provinces of Ontario, Quebec, New Brunswick and Nova Scotia, in which these children have been placed. These agents were selected from their special experience in immigration matters and their ability to judge of the position and condition of the children. An examination of their report shows that, with very few exceptions, the children were found to be doing well. The condition of the children themselves, on the whole, was very

greatly improved, and their employers or the families with whom they were placed for adoption, were generally satisfied with them. The exceptions were not at all of an importance to affect the general rule of the value of the immigration of such children, either as regards the country, viewed as a question of immigration, or the incalculable benefit to the children themselves.

An addition to the Mennonite colonists in the Province of Manitoba, was made by a further arrival of 1,357 more Mennonites from South Russia. A portion of these were of the poorer class, having been assisted in the passage from Hamburg by ^a remittance from the Mennonite Committee of Ontario, and further assisted in their settlement by an advance from the Mennonite Loan voted by Parliament. The amount of the remittance to assist in the passage, as stated by Mr. Klotz, was \$4,451. They were also assisted in their settlement from the Mennonite Loan. Another portion of this party brought with them a considerable amount of money, Mr. Klotz having reported that he exchanged at Hamburg for them Russian roubles for bills on the Bank of Montreal to the amount of \$170,000.

The total number of Mennonites who have now settled in Manitoba is 6,147; and more are yet expected to arrive. The agreement made by the Department with the delegates who visited Canada in 1873, extends to 1882, that being the limit of time within which the delegates stated the Czar would permit this emigration from Russia to take place. The reports from those Mennonites who have settled in Manitoba are satisfactory. Their condition is particularly described in a narrative of a visit made to Manitoba by Mr. J. W. Down, of Bristol, Eng., in the Appendix No. 19 to this report. Mr. Down's visit was for the purpose of examining into the suitability of the Province of Manitoba for English colonization.

A further special colonization of 1,156 Icelanders, was made during the summer on the west shore of Lake Winnipeg. These colonists arrived in a healthy condition, but on their arrival at Manitoba sickness appeared; and as the winter approached, the disease of small-pox broke out among them in a virulent form, causing great suffering and loss of life. The most effective possible steps were taken to prevent the spread of the disease and to attend to the wants of those attacked. The presence of this disease rendered it necessary to segregate these colonists by Quarantine to prevent them from communicating with the Province of Manitoba. A very large number of the men were thus prevented from continuing to obtain employment on the railway works, on which they had been engaged, thus adding further to the privation of the colony.

The settlement at Gimli, the name given to the first Icelandic settlement, was in the first place commenced upon representations of its suitability for Icelandic colonization by an Icelandic deputation who visited it in the fall of 1875; and it was upon the published report of that deputation that the Icelandic Immigration of 1876 was mainly based. It was found, however, as the season of 1876 advanced, it proving

to be an unusually rainy one, that the selection of Gimli was not altogether the most suitable, it being too wet. The new colonists therefore considered it advisable to settle farther north on the lake shore. About 400 acres of crops were put in at Gimli, during the spring, but they were very much injured by the wet season.

The colony of 285 Icelanders who went to Gimli just as the winter was setting in, in 1875, suffered privations from not having had time to make adequate preparations, and from difficulty of communicating with the Province of Manitoba, in the absence of a road, after the Lake and Red River were closed by ice. Scorbutic disease broke out among them, and a number of them died.

During the summer and fall, a winter colonization road was constructed jointly by this Department and the Department of the Interior, for the purpose of connecting the Icelandic colonists and the west shore of Lake Winnipeg with the road system of the Province of Manitoba.

It was found necessary to make a special advance to be repaid, to the Icelandic immigrants who arrived during the last summer, they not having sufficient means to enable them to live until next harvest. The disease of small-pox has caused a severe check to the prospects of this colony.

A report of a special investigation into the condition and means of the Icelanders who arrived in 1876, by the Secretary of this Department, is hereunto annexed. The reports of Mr. Taylor, the Icelandic Agent at Gimli, and Mr. Jonnassen, the assistant Agent and Interpreter, containing an account of the progress and condition of these colonists; and of Drs. Young and Lynch, on the prevalence of small-pox among them, are given in the Appendix No. 29.

The colonization of repatriated Canadians, made a successful start during the year, 361 having taken up land; and, from all reports, are thriving and satisfied.

Mr. E. Jenkins, M. P., declined to accept the re-organization of the London Office, referred to in the last report of my predecessor, by which the Agent-Generalship was abolished; and Mr. F. J. Dore, an officer of this Department, was placed in charge.

The annual report of Mr. Stafford the Quebec Agent, appears in Appendix No. 1 herewith. He remarks that no immigrants by sailing vessels arrived at Quebec in 1876, the whole having come by steamers. The moderate price at which steamers now carry immigrants, and the very great superiority of the facilities they afford both in speed and comfort, and better conditions of health, fully account for their complete absorption of the trade. The average passages of the Allan mail steamers from Liverpool to Quebec was $10\frac{1}{2}$ days, and from Londonderry, $9\frac{1}{2}$ days. Those of the Glasgow steamers, $13\frac{1}{2}$ days. Those of the Dominion Line from Liverpool $11\frac{1}{2}$ days, and of the Temperley's Line from London, 15 days. The great bulk of all the immigrants who came were labourers and their families. The Quebec Agent further reports that the immigrants who came were of a good class, and in healthy condition. Nine deaths occurred during the voyage. He specially mentions the Icelanders as having been healthy and comfortably dressed.

Mr. Daley, the Agent at Montreal, in addition to the large number of immigrants passing through his station or only calling for meals, reports 1,761 immigrants as having been registered in his Agency, 130 having been returned to Portland, and the remainder distributed for settlement. The commercial depression caused particular distress and sickness among the immigrants from France who had settled in Montreal, they being, for the most part, artisans, and about 230 were assisted to return to France.

The Montreal Agent also reports that in addition to the immigrants distributed by him, the Agent of the Quebec Government, in Montreal, found occupation during the year for 1,106 immigrants in the immediate vicinity of that city.

Mr. Wills, the Ottawa Agent, reports the arrival of 769 European immigrants, and 1,665 from the U.S., in his Agency. He states that the demand for labour was much less than in previous years and wages lower, common labourers being paid on an average one dollar per day, without board, and agricultural labourers from \$10 to \$12 per month with board. The commercial depression led to unusual calls upon him for assistance.

Mr. Macpherson, the Agent at Kingston, reports the arrival, in his Agency, by the St. Lawrence, of 749 immigrants, and 1,677 *via* the United States. The demand for all kinds of labour during the year, was more limited than previously. He could, however, he states, have placed more farm labourers and domestic servants, had they arrived earlier in the season.

Mr. Donaldson, the Toronto Agent, while noticing the decline in the number of immigrant arrivals in his Agency, still reports the number of 8,937, of whom 6,374 arrived by the St. Lawrence, and 2,563 *via* the United States. Of these he states 1,616 went to the Western States, and the remainder settled in Canada. These arrivals included 1,355 Mennonites and *1,167 Icelanders, who stayed over at this station for washing and resting before proceeding to Manitoba. He mentions, as a feature of the immigration of the season, that 1,500 settlers left his station to settle on the Free Grant Lands in Muskoka.

Mr. Smith, the Hamilton Agent, reports that there was a good demand during the year for agricultural labourers, and he had no difficulty in placing all who arrived. He mentions, as a special feature, that the cotton factories in his Agency caused a good demand for both spinners and weavers; while the railways and other public works made a demand for common labourers. He reports the arrival of 796 immigrants by the St. Lawrence, and 12,710 by the Suspension Bridge; of whom he states 6,492 settled in Canada, and the remainder, 7,014, went on as passengers to the Western United States.

Mr. Smythe, the Agent at London, Ont., reports that, while there was a decline in

* Mr. Stafford reports the arrival at Quebec of 1,156; but 11 more may have joined the party at Toronto.

the number of arrivals at his Agency, there was a larger proportion of settlers in that part of Canada than previously, arising from the fact of families who had previously settled advising their friends to join them. Of the immigrants who arrived during the season, he reports there are none, to his knowledge, out of employment, and the demand for both agricultural labourers, and female domestic servants exceeded the supply. The total number who arrived at his station was, he states, 2,065, of whom 787 came by the St. Lawrence, and 1,278 *via* the United States. Of these 589 went on to the Western States, the remainder settling in Canada.

Mr. Hubbard, the Agent at Sherbrooke, Quebec, reports the arrival of 79 immigrants who settled in his district. He states that the commercial and industrial depression checked the influx of immigrants in his section.

Mr. Shives, the St. John, N. B., Agent, reports a great falling off in the number of arrivals from Great Britain as compared with former years. He gives the immigration *via* the Dominion ports as 102, but he notices a considerable immigration from the United States, principally of returned Canadians, the total arrivals being 914, including those reported by Custom Houses.

Mr. Clay, the Agent at Halifax, likewise reports a large falling off in the arrivals as compared with 1875. The total number remaining in the Province in 1876 being 463, against 1,259 the previous year.

Mr. J. E. Tétu, the Agent at Dufferin, reports the entrance of 348 immigrants from the United States; 42 from other Canadian Provinces; and 1,349 by sea into the Province of Manitoba at that point. This does not appear, however, to be the whole of the immigration into Manitoba during the season, as a number of the immigrants appear to have proceeded directly to Winnipeg, and to have been distributed from that point. It happens from this circumstance that the ordinary records of the Agencies in Manitoba do not afford correct statements of the immigrant arrivals in that Province. The Dufferin Agent states that the French Canadians who entered from the United States have, in general, done well, and he has reason to believe that they will be followed by a large number during the coming season.

Mr. Hespeler, the Winnipeg Agent, reports that 255 immigrants were accommodated at the sheds at that point. He mentions the arrival of 256 immigrants from the other Provinces; 145 from the United States; and 19 from Great Britain, besides a portion of the Mennonites and the Icelanders. He states that a considerable number of immigrants arrived in the Province who were not accommodated at the sheds; and he estimates the number of these to be from 1,200 to 1,500. The probable total number of immigrants in Manitoba during the year is estimated at from 3,000 to 4,000, including those who entered at Quebec and were reported at that port, and those who emigrated from other Provinces of the Dominion. Both the Manitoba Agents report general good crops, although damaged by heavy rains.

The following Table exhibits the Total Expenditure of the Department, by Calendar

	1870.	1871.
	\$ cts.	\$ cts.
IMMIGRATION.		
Quebec Agency.....	31,000 00	26,263 79
Montreal do	2,839 43	3,933 73
Sherbrooke do		
Ottawa do	1,444 73	1,629 05
Kingston do	888 23	1,040 17
Toronto do	2,584 63	2,329 24
Hamilton do	1,152 91	1,195 40
London, Ont., Agency.....		
Halifax, N.S. do	1,509 62	1,167 02
St. John, N.B. do	1,005 25	1,139 49
North-West Agencies :—		
Winnipeg.....		1,292 20
Gimli (Icelandic).....		
Dufferin		
Special Agent with Immigrants on G. T. R. trains		
Portland Agency		
Chicago do		
Detroit do		
Worcester do		
Colonization Road, Icelandic Settlement.....		
Canadian Colonization		
Special Inspection of children brought out by Miss Rye, Miss Macpherson and others.....		
Mennonite expenses (transport).....		
General Immigration Contingencies, including Passenger Warrants, Commissions, Immigration Publications and Icelandic Transport		3,051 88
European Agencies and Travelling Agents' salaries and expenditures	13,594 55	20,271 17
Less amount refunded by Mennonites.....		
Total.....	56,498 09	63,796 22
QUARANTINE.		
Grosse Isle Quarantine	8,781 36	13,828 47
Halifax do	2,328 56	2,844 66
St. John, N.B. do	3,180 22	2,251 95
Inspecting Physicians, Quebec.....	2,600 00	2,599 99
Pictou Quarantine.....		
Miramichi do		
Charlottetown, P.E.I.....		
Public Health (principally for Cattle Quarantine).....		
Total.....	16,890 14	21,525 07
Vote of Parliament in aid of the Provinces for encouragement of Immigration		
Total Expenditure by the Dominion of Canada for Immigration and Quarantine.....	73,388 23	85,321 28

Years, for the services of Immigration and Quarantine, for 1870 to 1876, inclusive.

1872.	1873.	1874.	1875.	1876.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
36,715 62	64,507 64	57,768 73	48,743 59	23,432 99
7,965 93	10,179 83	9,032 94	13,412 99	16,277 56
	1,591 12	1,375 31	1,141 41	829 76
2,054 51	2,988 55	2,553 19	3,971 27	4,848 23
1,563 81	1,918 35	1,530 78	1,837 92	2,540 02
2,474 63	2,953 17	3,456 37	2,923 42	6,825 33
1,167 85	1,302 16	1,631 00	1,721 59	1,511 24
	725 90	1,442 59	1,700 47	2,394 36
1,531 50	1,818 13	1,920 79	1,738 72	1,429 52
1,141 24	1,064 63	1,132 05	1,114 46	1,071 82
2,822 66	3,672 75	2,638 35	3,568 04	5,398 83
				*26,165 12
				3,157 68
				1,128 00
				703 18
				1,839 08
				2,664 00
				3,147 18
				5,000 00
				3,713 50
				2,592 00
380 34	2,766 77	22,485 86	46,234 37	20,719 00
17,941 47	53,286 27	66,943 38	67,026 43	67,933 54
49,867 00	84,733 23	82,135 11	109,988 95	80,173 08
		256,279 45	305,123 63	285,499 48
		5,158 70	8,430 72	1,429 15
126,124 47	234,000 93	251,120 75	296,692 91	284,065 33
14,755 85	12,119 07	12,901 74	12,353 22	11,750 89
3,679 22	4,287 15	3,748 91	3,403 25	3,195 83
3,157 26	3,205 50	2,915 34	2,916 15	2,053 58
2,599 88	2,600 00	2,600 00	2,600 00	2,399 96
	210 36	686 28	732 25	700 00
	269 02	891 47	1,093 29	Discontinued.
		245 89	803 70	899 09
	4,823 83	6,302 83	1,628 13	4,474 16
24,192 21	27,514 93	30,292 36	25,530 09	25,473 51
70,000 00	70,000 00			
220,316 68	331,515 86	281,413 11	322,223 00	309,538 84

*This includes Icelandic Advances to be re-paid.

The following is a statement of expenditure through the Department for services other than Quarantine and Immigration in 1876 :—

Philadelphia Exhibition	\$68,039 09
Public Archives.....	215 00
Halifax Statistical Office.....	4,903 26
Total	73,157 35
Mennonite Loan, secured by Bonds.....	4,500 00
Advanced for relief of sufferers in Manitoba from grasshopper devastations	48,306 00

The total amount of the Mennonite Loan authorized by Parliament was \$100,000; and the total amount advanced to date \$63,400.00.

The special expenditure for the repatriation of Canadians in the Province of Manitoba was \$3,713.50 for Transport; and \$5,807.18 for Agency. In addition to the nucleus of colonization, hereinbefore referred to in that Province, which was formed by the exertions of Mr. Lalime, large numbers of further settlers have signified their intention to follow, during the coming spring. The reports of Mr. Lalime and Dr. Whiteford who are specially charged with this subject, are given in the appendices herewith.

The amounts spent for inland transport of immigrants are separately given, as follow, from 1871 to 1876, inclusive:—

In 1871	\$21,112 31
1872	33,873 55
1873	60,620 31
1874	61,269 02
1875	61,735 87
1876	60,572 68

Two-thirds of the amount spent for transport in the Provinces of Ontario and Quebec are refunded to the Department, and they constitute the principal portion of the above amounts.

In addition to the Dominion expenditure, the amounts spent by the Provinces for the promotion of immigration and colonization were as follow, during the years 1875 and 1876 :—

	1875.	1876.
Ontario	\$94,060 53	\$45,563 01
Quebec	39,420 00	36,375 00
New Brunswick	13,035 54	7,763 93
Nova Scotia.....	9,981 00	8,685 80
Total.....	156,497 07	98,387 74

It thus appears that there was a total expenditure for Immigration and Quarantine by the Dominion and the Provinces combined, in 1876, of \$407,926.58 against \$478,720 in 1875; \$529,236 in 1874; \$511,251 in 1873, and \$261,953 in 1872.

IV.—QUARANTINE.

GROSSE ISLE.

The annual Report of Dr. Montizambert, the Medical Superintendent of Grosse Isle Quarantine Station, which appears in the Appendix herewith, contains the usual tables and statement of expenditure.

He reports the past season as an exceptionally healthy one, only two vessels having required actual Quarantine inspection. The season's record, he says is "the smallest of any one year since the Station was established." Only one person, the mate of the schooner "Marie Louise," suffering from small-pox, was admitted to Hospital. He was discharged after two weeks detention. The captain of the vessel had died at sea of the same disease. The vessel and its contents were thoroughly fumigated and disinfected.

Not a single case of contagious disease or death occurred in any of the mail steamers.

The expenditure at Grosse Isle during the season of 1876, was \$11,750.89.

ST. JOHN, N. B., PARTRIDGE ISLAND.

Dr. Harding, medical officer at this Station, reports the inspection of two vessels, requiring detention and disinfection during 1876. The ship "Equator," from Rotterdam arrived with typhus fever on board, one sailor having died when twelve days out, from this disease. On the arrival of the vessel one of the sailors was labouring under a severe attack of the same, and was removed to the hospital, where, after lingering some time he died. Extra care was taken to prevent the spread of the disease, and the ship was thoroughly cleansed and fumigated before being discharged.

The ship "David Fleming," from Liverpool, arrived with six of her crew suffering from small-pox, and reported four deaths from the same disease during the passage. The six patients who were placed in hospital were all finally discharged, cured, and no spread of the disease occurred.

The expenditure at this Station during the year, amounted to \$2,399.96.

HALIFAX, N. S.

Dr. Wickwire, medical officer at this Quarantine Station, reports that "very little sickness requiring official attention presented itself," during the past year.

The steamship "Austrian," from Liverpool, landed a steerage passenger suffering from measles. As the city authorities refused admission to the City Hospital, the patient was taken to the Quarantine Station and there treated till recovery took place.

The barque "Templar," from Montreal for Europe, arrived in port with the loss of one man from small pox. The vessel was quarantined for the usual period, and no other case appeared.

The brigantine "Arctic," bound for Cork, put into Halifax, with a seaman suffering from malignant fever. He died the same evening, and the usual precautions were taken to prevent any spread of the disease.

With these exceptions the port has been remarkably free from disease.

The expenditure at the Halifax Quarantine during the year, amounted to \$3,195.83.

PICTOU, N.S.

Dr. Cooke, Inspecting Physician at Pictou, states that no cases of infectious or contagious disease have required attention, during the past year, at this port.

The expenditure at this Quarantine Station, during 1876, was \$700.00.

CHARLOTTETOWN, P.E.I.

No formal report has been received from the Inspecting Physician at this port.

The expenditure at this Quarantine Station, in 1876, was \$899.09.

V.—CENSUS AND ARCHIVES.

The fourth volume of the Census was in the hands of the printers at the date of the last Departmental report, and was distributed in June last. The fifth, and last volume, is now all prepared and undergoing the process of last tabulation for the printers. This volume will comprise very full deductions from the tables of the preceding four volumes already published, comparative statements made with previous censuses in property, shipping, lands, animals and products thereof, of the field, of the forest, of the fisheries, minerals, industries, &c., as well as deductions and arithmetical calculations of rates, proportions, &c. This volume will also embrace very full results of extensive enquiries on vital statistics, from the old and recent records in existence. These compilations will afford a most interesting insight into the normal natural rate of increase of our population, and other collateral questions, connected with the subject of birth, deaths and longevity.

STATEMENT of the Census Expenditure, from 1st January to 31st
December, 1876.

1876.	Employés.	Printing, Binding and Stationery.	Miscellaneous.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
January.....	607 25		158 00	765 25
February.....	577 75		58 00	635 75
March.....	607 25		128 00	735 25
April.....	592 50		90 00	682 50
May.....	607 25			867 25
June.....	592 50	1,672 10	211 50	2,024 66
July.....	607 25		44 50	651 75
August.....	607 25		30 00	637 25
September.....	592 50		30 00	622 50
October.....	607 25		171 50	778 75
November.....	592 50		60 00	652 50
December.....	607 25		30 00	637 25
Total.....	7,198 50	1,672 10	1,011 50	9,690 66

RECAPITULATION.

Employés.....	\$7,198 50
Printing, &c.....	1,672 10
Miscellaneous.....	1,011 50
Total.....	\$9,690 66

The arrangement and classification of the historical archives, in possession of the Department has been steadily proceeding under the care of the Archivist, about 40,000 original letters and other papers, dating back to 1780, being now ready for binding. Valuable original journals containing the history of events immediately preceding the declaration of Independence of the United States, recorded from day to day, besides other documents, have been added to the collection.

VI.—PATENTS.

The following table shows the business of the Patent Office, including Industrial Designs, Trade Marks, Copyrights and Timber Marks, registered during the years from 1855 to 1876 inclusive:—

Years.	Applications for Patents.	Patents Granted.	Caveats.	Transfers of Patents Registered.	Designs Registered.	Trade Marks Registered.	Copyrights Registered.	Timber Marks Registered.	Assignments of Copyrights and Trade Marks Branch.	Fees Received.
1855	99	92	.....	32	.....	.....	.....	.....	.....	\$ cts. 1,911 30
1856	120	108	.....	52	.....	.....	.....	.....	.....	2,370 50
1857	126	115	.....	54	.....	.....	.....	.....	.....	2,406 76
1858	116	98	.....	35	.....	.....	.....	.....	.....	2,105 00
1859	142	112	.....	26	.....	.....	.....	.....	.....	2,479 75
1860	170	150	.....	47	.....	.....	.....	.....	.....	2,644 07
1861	160	142	.....	56	2	3	.....	.....	.....	3,012 70
1862	180	160	.....	72	.....	17	.....	.....	.....	3,650 90
1863	207	156	.....	78	4	1	.....	.....	.....	3,759 90
1864	170	145	.....	74	1	7	.....	.....	.....	3,267 95
1865	184	162	.....	70	1	16	.....	.....	.....	3,618 76
1866	274	263	.....	136	.....	65	.....	.....	.....	6,132 73
1867	369	218	.....	193	5	54	.....	.....	.....	8,110 00
1868	570	546	.....	337	6	32	†34	.....	.....	11,052 00
1869	781	580	*60	470	12	50	62	.....	.....	14,214 14
1870	626	556	132	431	24	72	66	190	.....	14,540 07
1871	279	512	151	445	22	106	115	105	.....	14,097 00
1872	752	670	184	327	17	103	87	64	11	19,578 65
1873	1,124	1,026	171	547	30	95	122	69	20	29,830 14
1874	1,376	1,249	200	711	30	163	134	41	19	34,301 98
1875	1,418	1,322	194	791	31	149	131	21	15	34,555 82
1876	1,548	1,382	185	761	47	238	178	17	33	36,187 63

It, by this, appears that the applications for patents were more numerous than in any previous year, as were also the patents granted. The total fees received by the Department were also larger in amount than in any previous year, having reached the figure of \$36,187.63. This increase has taken place, notwithstanding the continuance of the commercial depression during the year.

Among the applications for patents, 19 were rejected during the year, under the power granted by the Act, for want of novelty; and, as usual, a number of applications were amended and claims modified.

1,305 patents were granted for terms of five years; 21 for ten years; and 56 for fifteen years.

*There were no caveats until 1869.

† Transferred from the Department of Secretary of State.

The Patentees of 1874, 1875 and 1876, were resident in the following countries:—

	1874.	1875.	1876.
Canada	528	521	575
England.....	43	44	51
United States.....	665	748	736
France.....	3	3	8
Germany.....	2	2	3
Russia.....	....	1	....
Austria.....	4	....	1
Turkey .....	....	1	....
Italy	2	....	....
Switzerland	1	....	....
Chili	1	....	....
Other Countries.....	....	....	8
Total.....	1,249	1,320	1,382

The Canadian Patentees were distributed among the Provinces as follow:—

	1874.	1875.	1876.
Ontario.....	340	348	380
Quebec.....	144	134	152
New Brunswick.....	19	24	19
Nova Scotia.....	14	14	21
Prince Edward Island.....	4	....	....
British Columbia.....	1	1	2
Manitoba.....	1	....	1
Total.....	528	521	575

468 patents out of 495, issued in 1871 for a term of five years, were allowed to expire during the last year; 27 only of the patents granted in 1871 having been renewed.

In a few instances during the year 1876 conflicting applications for patents were settled by arbitration, and patents issued in accordance with the awards of the arbitrators.

The Model Rooms are now being refitted with the glass cases which were used in the Canadian Court of the Centennial Exhibition at Philadelphia, which have been adapted to the models, and allow a better classification and arrangement of them with much economy of space. There is also a decided improvement in the appearance of the room; at the same time the models themselves are better protected from possible injury by improper handling. The space economized will enable the numerous models which are received to be placed in the present rooms, for some time to come

The Model Rooms will be rendered much more attractive to the public by the use of these cases, and mechanics and inventors will be better able to study and examine the various inventions. Large numbers of visitors continue to frequent these rooms for the purpose of study.

The *Illustrated Patent Record*, in connection with the *Mechanic's Magazine*, is continued to be published under an arrangement with the Department, by the "Burland Desbarats Lithographic Company," in a manner which is found to be highly satisfactory. The *Patent Record* is of great value for making publicly known the patents issued by the Department, while there is reason to believe it exercises an important and beneficial influence in the mechanical education of the country. A moderate subsidy is allowed by the Department for publishing illustrations of Canadian patents.

VII.—COPYRIGHTS, TRADE MARKS, INDUSTRIAL DESIGNS AND TIMBER MARKS.

The following table shows a comparative statement of the business of this Branch from 1868 to 1876, inclusive:—

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.
Letters received	110	198	473	562	523	418	1,027	943	1,175
Letters sent	128	211	473	562	523	549	1,027	986	1,240
Copyrights registered.....	34	62	66	115	87	122	134	131	178
Certificates of Copyrights.....	34	62	66	115	33	38	55	50	57
Trade Marks registered.....	32	50	72	106	103	95	163	249	238
Certificates of Trade Marks.....	32	50	72	106	103	95	163	149	238
Industrial Designs registered..	6	12	23	22	17	30	30	31	47
Certificates of Industrial De- signs	6	12	24	22	17	30	30	31	47
Timber Marks registered.....			190	105	64	69	41	21	17
Certificates of Timber Marks..			190	105	64	69	41	21	17
Assignments registered.....					11	20	19	15	33
Fees received	\$183	\$418	\$877	\$1,092	\$927	\$940 50	\$1339 50	\$1,175	\$1758.25

The business of the Branch having these subjects in charge shows, in 1876, the same steady increase over that of the preceding year which has been apparent since 1868.

The total number of registrations of Copyrights, Trade Marks, Industrial Designs, and Timber Marks was 480; out of this number there were 161 registrations of Copyrights besides 49 Certificates; 13 of Interim Copyrights, besides 7 Certificates; 4 Temporary Copyrights, besides 1 Certificate; 238 registrations of Trade Marks; 47 of Industrial Designs, and 17 of Timber Marks. The total number of assignments of these different rights recorded was 33.

The correspondence of this Branch of the Department amounted to 1,175 letters received and 1,240 letters sent.

The fees received during the year amounted to \$1,758.25.

The Appendices to this Report contain, besides the usual Annual Reports of the regular outside officers of this Department in the Dominion, the Report of Mr. F. J. Dore, the Canadian Emigration Agent in London, of his operations during the year, and also the Reports of the Special Agents in the United Kingdom, and on the Continent of Europe, transmitted by him. They also contain several special reports on the subject of Immigration and Cattle Quarantine.

The whole respectfully submitted.

C. A. P. PELLETIER,

Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,

OTTAWA, January, 1877.

 REPORT OF THE SECRETARY OF THE DEPARTMENT ON THE CONDITION AND MEANS OF THE ICELANDERS ARRIVED BY THE "AUSTRIAN" AND THE "PHOENICIAN."

OTTAWA, August 9th, 1876.

SIR,—I have the honour to report that, in obedience to instructions received from you, during the temporary absence of the Honorable the Minister of Agriculture, then at the Philadelphia Exhibition in his capacity of President of the Canadian Centennial Commission, I went to Toronto on the 24th and on the 31st ultimo to enquire into the condition, means and prospects of the Icelanders, who had arrived by the "Austrian" and by the "Phœnician." I found at the immigrant station the arrivals by the "Austrian" to consist of:

Male Icelandic adults, married.....	116
Female " " "	132
Male " " single	109
Female " " "	101
Children between 1 and 13	241
Infants under 1	61
	<hr/>
Total souls	760

Or equivalent, as regards inland transport, to 578½ adults.

There were two deaths of infants during the night of the 25th but the Medical Inspector of the station reported that these had been ailing since leaving Iceland. One woman had a rheumatic affection. Beyond these the whole party, he stated, was healthy and strong;—more so than the usual immigrants in the same numbers from the British Islands.

On enquiring into their means, I found there were:

3 possessing each.....	\$500
1 "	250
1 "	175
4 "	150
2 "	120
12 "	50

And a number with smaller sums. Many had no money. The total amount of cash among the party, after paying the ocean fares to Quebec and inland fare to Gimli, was \$4,222. They had a large quantity of luggage, part of which consisted of nets, tools, etc.

More than half of the whole, or 297½ adults, were originally destined for the Province of Nova Scotia; but their destination having been changed on representa-

tions of an agent of the Nova Scotian Government, they were permitted to join the immigrants proceeding to Manitoba. The whole of those who were going to Nova Scotia were found, without exception worth mentioning, to have no money at all.

Mr. Jonassen, the Agent of this Department, who was authorized to proceed to Iceland last autumn, reported to me that he had not induced any of the immigrants to come, under the expectation that they would be maintained during the winter; but he stated that, when he left Canada for Iceland, he had an understanding, based on a telegram received by the Department, that the Hudson's Bay Company would guarantee a loan in aid of the settlement, and this impression he appears to have conveyed. He stated that some of the immigrants have left effects in Iceland to be realized, the proceeds of which are to follow them.

As respects the Icelanders on board the "Phœnician," which arrived at Quebec on the 29th of July, the total number of souls was 402, the whole of whom proceeded to Toronto. The number of adults was 283, and the number of families 78. The Medical Inspector at the Toronto Station, who inspected this party pronounced them to be, as the previous party were, healthy and strong.

I found that the total amount of cash possessed by the party, was \$3,804.

There was 1 with \$500.

" 1 with 480.

" 1 with 200.

" 1 with 150.

" 1 with 120.

" 6 with 100.

" 14 with 90 to \$50 and 15 with from \$40 to \$20.

A large number of others had smaller sums. Money in small sums was more generally distributed among this party than that by the "Austrian."

Of the party brought by the "Phœnician" 37 adults (48 souls) intended to go to Nova Scotia; but on representations made to them after landing at Quebec, by Mr. Robertson, Immigration Agent for the the Government of Nova Scotia, these persons decided to change their destination, and proceed to Gimli.

The position of the party by the "Phœnician" in all other respects was precisely similar to that by the "Austrian." They had the same expectations of assistance to be advanced, based upon the same representations made to them.

The whole of both parties were ticketed for Winnipeg by Mr. Stafford, in nearly equal proportions, between the Sarnia and Collingwood routes, as he was instructed. They were provided with provisions and some necessaries; and, with your permission, allowed to proceed.

The whole of both parties paid for their sea passage from Iceland *via* Glasgow to Quebec, amounting to £7 15s. stg. per adult, less a usual warrant deduction of £1 authorized by you. They further paid \$13 on account of fare from Quebec to Winnipeg, which costs the Government \$22; namely \$5 from Quebec to Toronto, and \$17 from Toronto to Winnipeg. A portion of them, however, had not means to pay inland fare.

The total amount collected from both parties by Mr. Stafford, at Quebec, was \$6,964.04.

The total amount of money found to be in possession of both parties, at Toronto, after paying ocean and inland fares, was \$8,166.

The placing of these Icelanders with their countrymen at the colony of Gimli, on the west shore of Lake Winnipeg, will make it necessary to advance them very considerable funds from the immigration vote, either as simple aid or a loan to enable them to winter there.

They do not expect the former. It, therefore, becomes important immediately to decide whether an advance can be made to them to be repaid. Such an advance might be secured under the amendment to the Dominion Lands Act (37 Vic., cap. v., sec. 14, 15).

The Icelanders whom I visited had not the slightest notion, and indeed could not have, of the amount of money necessary to enable them to start in the new colony and live until next harvest.

I have, therefore, thought it important to obtain particulars, based on the first year's experience of the Mennonite colonies in Manitoba, which I procured from Mr. J. Y. Shantz, the Chairman of the Executive Committee of the Mennonite Society of Ontario.

The Mennonite families averaged five; and those who had means started with:

1 yoke oxen.....	\$120
1 cow.....	35
1 plough.....	25
1 waggon.....	65
1 cooking stove.....	25
	<hr/>
Total outfit of family.....	\$270

Those families who had not means were furnished with a similar provision, with the exception that two families clubbed together to use one outfit between them to begin with.

The provisions laid in for subsistence almost wholly consisted of flour, pork and beans. The cost of providing these for a colony of 300 families for one year was \$28,000, or \$93 per family.

The total cost of living for one year, and starting the colonization of the two parties, may be thus stated on the basis assumed:—

Families per "Austrian,".....	116
" " "Phœnician,".....	78
	—
Total.....	194
	—
Food at, at \$93 per family.....	\$17,942
Two families clubbing for one outfit, &c., at \$270, equal to 97 families.....	26,190
	—
Total.....	\$44,132
Deduct cash in possession of the two parties.....	8,166
	—
Net amount required.....	\$35,966

It may be safely estimated that this amount of cash will be required to enable these Icelanders to settle as colonists and live till the next harvest. The amount may be greatly reduced by their own earnings; it is possible that an abundant fish supply, obtained from Lake Winnipeg, might lessen the cost of feeding; and the expensive waggon and yoke of oxen in the Mennonite outfit might not be required by the Icelanders. But more cows will be, from the fact that milk is an important constituent of Icelandic diet; and it is safer for the purposes of this calculation to take the outside figures.

The Icelanders who went to Gimli late last fall and wintered there, suffered great privations and hardships from insufficient food. There were deaths among them from scorbutic disease. This sickness, however, is reported to have in a great measure arisen from hardships of a similar character endured in Ontario, previous to going to Gimli. But they are, in view of everything, satisfied with their location and prospects, and some of the new immigrants have letters from them, written this spring.

There are no data on which to base any calculation of the probable amount the Icelandic immigrants could earn by work, which might be afforded by the operations of the railway contractors in the vicinity; but if the Government authorize the construction of a road from Gimli to connect with the roads of Manitoba, the length of which would be 34 miles, and the cost \$8,000 as estimated, a large portion of the earnings of the Icelanders at this work, might go in reduction of the \$35,966 necessary to keep them till the next harvest.

The two parties of Leelanders have gone to Gimli provided with only temporary means for their subsistence, and I respectfully submit, it is very urgent that immediate steps be taken to meet the exigencies of the situation which I have endeavoured to indicate.

As bearing on the possible success of colonization of this nature, I may state that Mr. Shantz reports that the Mennonite colonies are in a prosperous condition, with crop prospects exceeding expectation. The three hundred families who went to the Dufferin settlement last autumn have under cultivation 1,500 acres of wheat and barley, principally wheat. They have, in addition, horses, oxen, cows, sheep, pigs and fowls. Not many potatoes were set out, the seed being too dear; but they have a sufficiently plentiful supply of vegetables and roots other than potatoes.

I have the honour to be, Sir,

Your obedient servant,

JOHN LOWE,

Secretary of the Department of Agriculture.

Hon. R. W. SCOTT,

Secretary of State, &c.,

Acting for the Minister of Agriculture.

APPENDIX No. 1.

ANNUAL REPORT OF QUEBEC IMMIGRATION AGENT.

(MR. L. STAFFORD.)

GOVERNMENT IMMIGRATION OFFICE,
QUEBEC, 30th December, 1876.

SIR,—I have the honour to submit to you for the information of the Honourable the Minister of Agriculture and Immigration, my report for the calendar year 1876. The total arrivals of Immigrants at the Port of Quebec in 1876, were:—

	Cabin.	Steerage.	Total.
.....	2,196	8,714	10,910
Deduct deaths at sea		9	9
	2,196	8,705	10,901

The arrivals compared with those of 1875 show a decrease of 5,137 souls.

COMPARATIVE TABLE OF ARRIVALS 1875 AND 1876.

Where sailed from.	1875.		1876.		Increase.	Decrease.
	Cabin.	Steerage.	Cabin.	Steerage.		
England	1,659	10,797	1,904	5,816	.....	4,736
Ireland	83	1,169	98	590	.....	564
Scotland	170	1,598	194	1,937	363	.....
Total from United Kingdom	1,912	13,564	2,196	8,343	363	5,300
Via other countries .....	.....	562	.....	362	.....	200
	1,912	14,126	2,196	8,705	363	5,500
		1,912		2,196		363
		16,083		10,901		4,937

Showing a decrease of 4,937 in the Immigration from the United Kingdom, and 200 via other Countries, making a total decrease of 5,137.

The total number of Steamers which arrived with passengers were 82; none came by sailing vessels.

The average passage of the Allan Line was, Mail steamers from Liverpool, 10½ days; Londonderry, 9½ days; Glasgow Steamers from Glasgow, 13¾ days; Liverpool, 12½ days. Dominion Line from Liverpool, 11½ days. Temperley's London Line, 15 days.

The number of cabin and steerage by each line of vessels was as follows :—

	Cabin.	Steerage.	Total.
Allan Line—Mail Steamers.....	1,806	5,059	6,865
do Glasgow Steamers occasionally touching at Liverpool...	194	2,280	2,474
Dominion Line of Steamers.....	150	866	1,016
Temperley's Line of Steamers	46	138	184
Via United States, &c		362	362
	2,196	8,705	10,901

The nationalities of the passengers brought by each line were as follows :—

	English.	Irish.	Scotch.	Germans.	Scandinavians.	French and Belgian.	Icelanders	Russian Mennonites.	Russians.	Total.
Allan Line Mail S'trs from Liverpool and Londonderry	4,149	688		79	990	123		816	20	6,865
Glasgow Steamer.....	163		964	7	162	11	1,167			2,474
Dominion Line	321	71	15	8	1	58		542		1,016
Temperley's Line	184									184
Via United States, &c	172	49	30	10	4	97				362
	4,989	808	1,009	104	1,157	289	1,167	1,358	20	10,901

The nationalities of the immigrants of 1876 compared with those of 1875 were as follows :

	1875.	1876.
English.....	7,582	4,969
Irish	1,449	808
Scotch	1,816	1,009
Germans	176	104
Scandinavians.....	1,201	1,157
French and Belgians	534	289
Icelanders.....	22	1,167
Russian (Mennonites).....	3,258	1,358
Russians		20
	16,038	10,901

The number of single men arrived was 2,785.

The number of single women arrived was 1,148.

Table No. 2 gives the amount of passengers from each port in 1875 and 1876.

The trades and callings of the steerage male adults as per passenger lists were as follows :—

Blacksmiths	1
Carpenters.....	2
Cabinet-makers.....	1
Clerks.....	13
Engine-drivers	1
Farmers	510
Fishermen	6
Gardeners	4
Labourers	2,796
Moulders	1
Masons	1
Mechanics not specified.....	472
Tailors	2
	3,810

Table No. 3 gives the number of immigrants arrived at the Port of Quebec from 1829 to 1876 inclusive, showing a total of 1,375,556, or a yearly average of 28,651.

The following table gives the number of immigrants assisted to emigrate by various Societies during the season 1876 :—

Date.	Vessel.	By whom sent.	Sexes.				Total.
			Males.	Females.	Children.	Infants.	
May 8	Sardinian.....	Miss Macpherson.....	2	3	53	5	63
do 8	do	Mr. Middlemore, Children's Home, Birmingham.....	14	6	46	5	71
do 30	Moravian.....	Rev. Mr. Fletcher, Dublin.....		4			4
June 6	Peruvian.....	Kingswood Reformatory, Bristol.....	3				3
do 9	Texas.....	Seaman's Orphanage, Liverpool.....	4	5	8	1	18
do 15	Austrian	Miss Macpherson.....	7	8	37	1	53
do 25	Manitoban.....	Lady Hobarts, London.....	3	3	4	4	14
July 10	Moravian.....	Rev. Mr. Nugent, Liverpool.....		1			1
do 30	Sardinian.....	Miss Macpherson.....	7	3	29	2	41
Oct. 1	Moravian.....	Catholic Emigration Committee, London.....			6		6
do 23	Sardinian.....	Miss Macpherson.....	2	1	19		22
Nov. 13	Moravian.....	Catholic Emigration Committee, London.....	3		4		7
			45	34	206	18	303

The total number assisted with free transport by this office was 5,740 souls; 4,392 adults.

Males.....	Souls.	Adults.
Females.....	2,226	2,226
Children	1,568	1,568
Infants	1,196	598
	750	
	5,740	4,392

At a cost of transport of \$48,291.70, averaging \$8.41½ per capita or \$10.99½ per adult. Their nationalities were :—

	Souls.	Adults.
English.....	1,869	1,449½
Irish	409	365
Scotch	494	386½
Germans	99	76
Norwegians	39	37
French and Belgians.....	317	297½
Icelanders	1,156	834¼
Russian (Mennonites)	1,357	946
	<u>5,740</u>	<u>4,392</u>

They were forwarded to the following places :—

	Souls.	Adults.
Eastern Townships	171	153
Montreal	572	526½
Ottawa	153	127½
Central Districts.....	413	299
Toronto	869	735½
West of Toronto.....	1,046	770
Manitoba	2,479	1,749
Lower Provinces.....	15	14½
Liverpool, (England).....	14	11
Glasgow, (Scotland).....	2	2
Dublin, (Ireland).....	1	1
Paris, (France).....	5	3
	<u>5,740</u>	<u>4,392</u>

The general destinations of the steerage passengers as per returns from Grand Trunk Railway, were as follows :—

Eastern Townships.....	Adults.	
Montreal	162½	
	<u>744½</u>	
Total Quebec.....		907
	Adults.	
Ottawa City.....	137	
Ottawa District.....	524	
Kingston City.....	31½	
Kingston District.....	374	
Toronto	943½	
West of Toronto.....	1,075½	
	<u>2,614</u>	
Total, Ontario.....		2,614
	Adults.	
Nova Scotia.....	17½	
New Brunswick.....	3	
Manitoba	1,756	
	<u>1,776½</u>	
		5,297½
Add ½ for children and infants.....		1,765
		<u>7,063</u>
Total number of souls remaining in Canada...		7,063
Eastern States.....	100	
Western States, (chiefly Scandinavians).....	977	
	<u>1,077</u>	
Adults.....	1,077	

The total expenditure for immigration purposes at this Agency for the year ending 31st December, 1876, was as follows:—

Meals, Provisions, Assistance to Immigrants.....	\$1,987 18	
Agency Charges	1,271 28	
Salaries of Staff.....	4,150 00	\$7,408 46
	<hr/>	
Pay of Clothing of Guardians of Levis Sheds.....	\$2,448 50	
Repairs, Firewood, and Supplies.....	269 58	\$2,7 8 08
	<hr/>	
Inspecting Physicians' Salaries.....	\$1,800 00	
Do. Boat Service.....	800 00	
Do. Stationery	28 23	
	<hr/>	\$2,628 23
Transport of Immigrants.....		\$48,291 70
		<hr/>
		\$51,046 47

The first vessel which arrived this season with immigrants was the *Polynesian*, which sailed from Liverpool on the 20th April, and arrived here on the 6th May. The last vessel, the *Manitoban*, from Glasgow, arrived on the 14th November.

The immigrants of the season were of a good class and healthy. Only nine deaths occurred on the voyage.

Those requiring medicine were attended to by the Inspecting Physicians, and the sick requiring further medical treatment were sent to the Immigrant Hospital.

Mr. Sumner, whose kindness and attention to immigrants cannot be too highly spoken of, travelled with the immigrants on the train until met and relieved by Mr. Pesse, Travelling Agent for Ontario, who accompanied them till they reached the Immigration Depot at Toronto.

The Mennonites were of a similar class to those of 1874 and 1875, and reported that they had with them in bank drafts and gold a sum equal to \$116,032.

The Icelanders were a fine, intelligent class, healthy and comfortably dressed, and will make good settlers. As there were no means of obtaining bank drafts in Iceland, their funds consisted of Danish gold and silver. With few exceptions, the amount brought out by each family was not large.

Good farmers and farm labourers found ready employment. These and female servants are always in demand, and are sure of finding employment on arrival.

The whole respectfully submitted.

I have the honour to be, Sir,
Your obedient servant,

L. STAFFORD,
Immigration Agent.

The Honourable Minister of Agriculture, Ottawa.

RETURN of the number of Emigrants embarked for Canada, with the number of Births and Deaths during the voyage and in Quarantine; the total number landed at Quebec, distinguishing Males and Females and Adults from Children, with the number of Souls from each Country; also, the number of Vessels arrived, their tonnage and average length of passage, during the Season of 1876.

Whence.	Class.	No. of Vessels.	Average number of days on passage.	Tonnage.	Number Embarked.						Total number of Souls on Board.	Deaths on Passage.						
					Cabin Passengers	Adults.	Children from 1 to 12 yrs		Infants.			Total Steerage.	Births.		Adults.		Children.		Infants.	Total.
					M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
England.....	Steamers.....	58	12½	106,271	2,584	1,536	788	634	279	5,821	7,725	1	1	1	1	2	5	
Ireland.....	Sailing Vessels.....	.....	.....	.....	292	220	40	26	12	580	608	.....	.....	.....	.....	.....	.....	.....
Scotland.....	Steamers.....	24	13½	33,618	695	695	281	256	121	1,941	2,135	.....	.....	.....	.....	.....	.....	.....
Germany.....	do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norway & Sweden.....	do.....	.....	.....	.....	236	83	19	12	12	362	362	.....	.....	.....	.....	.....	.....	.....
Via United States, &c.....	do.....	.....	.....	.....	3,810	2,444	1,128	908	424	8,714	10,910	1	1	3	1	3	9	.....
Totals.....	.....	82	.....	139,889	2,196	3,810	1,128	908	424	8,714	10,910	1	1	3	1	3	9	.....

* Steamers touching at Irish Ports are included in English Steamers.

TABLE No. 2.—STATEMENT of the number of Immigrants arrived at the Port of Quebec, distinguishing the Countries from whence they sailed, during the seasons 1875 and 1876.

—	1875.	1876.	—	1875.	1876.
ENGLAND.			SCOTLAND.		
Liverpool.....	12,412	7,536	Glasgow.....	1,768	2,131
London.....	44	139			
Plymouth.....		45			
	12,456	7,720	Via United States.....	562	362
IRELAND.					
Londonderry.....	1,022	688			
Belfast.....	230				
	1,252	688			

RECAPITULATION;

—	1875.	1876
England.....	12,456	7,720
Ireland.....	1,252	688
Scotland.....	1,768	2,131
Via United States, &c.....	562	362
	16,038	10,901

TABLE NO. 3.—COMPARATIVE Statement of the number of Immigrants arrived at the Port of Quebec since the Year 1829, until 1876, inclusive.

Years.	England.	Ireland.	Scotland.	Germany and Norway.	Russia—Mennonites.	Iceland.	France and Belgium.	Other Countries.	Total.
1829 to 1833	43,386	102,266	20,143	15				1,889	167,699
1834 to 1838	28,561	54,904	11,061	485				1,346	96,357
1839 to 1843	30,791	74,981	16,311					1,777	123,860
1844 to 1848	60,446	112,192	12,767	9,728				1,219	196,364
1849.....	8,980	23,126	4,984	436				968	38,494
1850.....	9,887	17,976	2,579	849				701	32,292
1851.....	9,677	22,381	7,042	870				1,106	41,076
1852.....	9,276	15,983	5,477	7,256				1,184	39,176
1853.....	9,585	14,417	4,745	7,456				496	36,699
1854.....	18,175	16,165	6,446	11,537				657	53,180
1855.....	6,754	4,106	4,859	4,864				691	21,274
1856.....	10,353	1,688	2,794	7,343				261	22,439
1857.....	15,471	2,016	3,218	11,368				24	32,097
1858.....	6,441	1,153	1,424	3,578				214	12,810
1859.....	4,846	417	793	2,722					8,778
1860.....	6,481	376	979	2,314					10,150
1861.....	7,780	413	1,112	10,618					19,923
1862.....	6,877	4,525	2,979	7,728				47	22,176
1863.....	6,317	4,949	3,959	4,182				12	19,419
1864.....	5,013	3,767	2,914	7,453					19,147
1865.....	9,296	4,682	2,601	4,770				6	21,355
1866.....	7,235	2,230	2,222	16,958				3	28,648
1867.....	9,509	2,997	1,793	16,453				5	30,757
1868.....	16,173	2,585	1,924	13,607				11	34,300
1869.....	27,876	2,743	2,867	9,626				2	43,114
1870.....	27,183	2,534	5,355	9,396				6	44,475
1871.....	23,710	2,893	4,984	5,391				42	37,020
1872.....	21,712	3,274	5,022	4,414				321	34,743
1873.....	25,129	4,236	4,803	2,010				723	36,901
1874.....	17,631	2,503	2,491	857				412	23,894
1875.....	12,456	1,252	1,768					562	16,038
1876.....	7,720	688	2,131					362	10,901
Total.....	510,739	510,438	154,848	184,284				15,247	1,375,556

Yearly average, 28,636.

L. STAFFORD,
Agent.GOVERNMENT IMMIGRATION OFFICE,
QUEBEC, 30th December, 1876.

No. 2.

REPORT OF MONTREAL IMMIGRATION AGENT.

(MR. JOHN J. DALEY.)

DOMINION GOVERNMENT IMMIGRATION OFFICE,
 BONAVENTURE STATION,
 MONTREAL, 15th January, 1877.

SIR,—I have the honour to submit the following Report of this Agency, and to transmit herewith the accompanying abstracts and statistics of the year ending 31st December, 1876.

INDIGENT IMMIGRANTS.

Abstract A. I have supplied seventeen hundred and sixty-one (1,761) indigent immigrants with tickets for their various destinations, *via* the Grand Trunk Railway, at a cost of four thousand eight hundred and twenty-seven dollars and sixty-one cents (\$4,827.61), and for meals, lodging and incidental food, fourteen hundred and five dollars and forty-seven cents (\$1,405.47).

IMMIGRANTS PASSING MONTREAL.

Mr. T. B. Hawson, Auditor of the Grand Trunk Railway, has obliged me by giving the number of immigrants passing Montreal on their way West; thus, by way of Portland, 1,133; *via* Quebec 11,338; total, 12,471. Of these only 1,761, as otherwise described, have applied to me for special aid.

DISTRIBUTION OF IMMIGRANTS.

Abstract B. will exhibit in detail the manner in which the 1,761 indigent immigrants have been distributed throughout the different sections of my Agency.

MENNONITES AND ICELANDERS FOR MANITOBA.

From memoranda taken at the Tanneries Junction (set aside for immigrants) I find that (from the 20th June to the 30th August, 1876,) twelve hundred and ninety-five (1,295) Mennonites, and eleven hundred and seventy-five (1,175) Icelanders were accommodated with meals at that depot. Out of this large number but one death occurred, that of an infant—a proof of their general good health. In fact, these people bore evident proofs of being a desirable class of immigrants and permanent settlers—they wore an aspect of cheerful, hale, resolute industry, and were possessed of funds to aid them in their future success.

SETTLERS AT NAMUR, NEW BELGIUM.

I have forwarded of Belgian and French some ninety-three (93) persons to their chosen place of settlement at Namur, New Belgium; these were of a hopeful and determined class, resolute to carve out a home for themselves and families on the land assigned them, carrying their own agricultural implements and a good supply of provisions to aid them for a year or so. They were the most worthy of the many Belgians and French, who have desired the aid and advice of this agency.

REPATRIATION.

The commercial depression during the past year caused great distress, and consequent sickness among the French immigrants in Montreal, which led to a general demand for repatriation. The number of 230 immigrants, principally French, came within the rules prescribed by the Department, and upon direct orders from the Department had orders given them to return.

IMMIGRATION OF CHILDREN.

The children introduced by the Misses McPherson and Rye have been assisted to the extent of my general instructions, and I believe have been comfortably placed by these ladies, both in the Provinces of Quebec and Ontario.

WELL-BEING AND HEALTH.

It is satisfactory to be enabled to state that many former immigrants, now permanently settled in the Dominion, found leisure during the past winter season, to revisit Europe, returning with their relations and friends, whom, by their cheering reports of their Canadian experience, they had induced to join them. Of the number of such persons newly introduced, I cannot speak positively, they rarely asked me for Government assistance, but were of a superior class to the ordinary stranger, bringing more or less means, paying their own expenses, and with a predetermination to settle in a chosen locality.

I have had occasion to send to the Montreal General Hospital only two persons during the year, who remained but for a day or two, and were discharged in good health.

DEMAND

Remains as in previous years, and need not here be recapitulated. Good servants, male and female, can at once obtain employment, and so can all labourers willing to work and improve their condition. There is no call for young men trained for office employment only.

Mr. Ibbotson, Agent for the Quebec Provincial Agency in Montreal, has found occupation for 1,106 applicants in and near the city, (to him my best acknowledgements and thanks are due.) He is prepared, as I am, to provide employment to any reasonable number of those willing to work.

ARRIVALS BY PORTS OF ENTRY.

Returns from the various Ports of Entry in this District show the arrival of 3,008 persons from the United States, with a total value of effects amounting to \$74,154. (See Statement D.)

COURTESIES.

To the President and Secretaries of the National Society established in Montreal. to His Worship the Mayor, to the active Agent of the Grand Trunk and other co-operating friends, I am much indebted.

The whole respectfully submitted,

I have the honour to be, Sir,
Your obedient servant.

JNO. J. DALEY,
Agent Dominion Immigration Office,
Montreal.

To the Honourable
The Minister of Agriculture,
Ottawa.

RETURN of Immigrant Arrivals and Departures at Montreal Immigration Agency for the year ending 31st December, 1876.

No. of Arrivals via the St. Lawrence.	No. of Arrivals via the United States.	Sexes.		Children.	Total Number of Souls.	Summary of Trades or Occupations.	No.	Nationalities.	No.	General Destinations via Grand Trunk Railway.	No.
		M.	F.								
946	815	807	609	345	1761	Mechanics.....	607	English	947	Ottawa District.	235
						Domestics.....	126	Irish	190	Western do	1016
						Labourers.....	431	Scotch	99	E.S.E & S do	510
						Farmers.....	230	Otherst	525		
						Others*	367				1761
							1761		1761		

*Including wives and families going to join their husbands and friends, also return passages. Including French, Germans, Italians, &c., arriving, and also the return passengers.
 N. B.—For detailed particulars as to distribution, see special returns accompanying this report.

(Signed.)

JOHN J. DALEY,

Government Immigration Agent.

January 1st, 1877.

STATEMENT B.—Showing the points to which 1761 assisted Immigrants have been distributed from Montreal Agency during the Year ending 31st December, 1876.

County.	Number of Immigrants.	County.	Number of Immigrants.
Acton.....	8	<i>Brought forward</i>	798
Brockville.....	23	Port Hope.....	41
Belleville.....	40	Prescott	8
Bowmanville	1	Portland, Me	130
Berlin.....	16	Richmond.....	4
Cornwall.....	19	St. Anne's	3
Coaticooke	7	St. John's, P.Q	12
Coteau Landing	2	St. Remi	1
Cobourg	2	St. Liboire	2
Guelph.....	5	St. Hyacinthe	1
Gananoque	3	Stratford.....	1
Halifax, N.S.....	1	Sherbrooke	24
Kingston.....	83	Sutton.....	2
Lancaster	4	Sarnia.....	32
London.....	14	Toronto.....	661
Morrisburg	1	Trenton.....	7
Napanee	3	Upton.....	3
Ottawa.....	240	Waterloo, P.Q.....	5
Oshawa.....	2	Whitby.....	26
Point Levi and Quebec	324		
<i>Carried forward</i>	798	Total	1,761

JOHN J. DALEY,

Dominion Government Immigration Agent.

DOMINION GOVERNMENT IMMIGRANT AGENCY,
 MONTREAL, 1st January, 1877.

STATEMENT C.—Showing the expenses of the Montreal Agency for the Year 1876.

	\$ cts.
Transport of Immigrants.....	4,827 61
Return passages	5,464 49
Meals furnished ; also bread and cheese and lodging, as temporary relief to the indigent immigrants actually needing it.....	1,405 47
Printing, advertising, stationery, fuel, light and postage	920 43
Repairs, rent and telegrams.....	590 76
Incidental expenses	597 81
Agency salaries.....	2,481 00
	\$16,287 57

JOHN J. DALEY,

Dominion Government Immigration Agent.

MONTREAL, 1st January, 1877.

STATEMENT D.—Showing number of persons returning to the Dominion for settlement who have made entries at the Custom Houses, of their effects. These are almost wholly French Canadians, married and with families. Some single persons have returned also, but making no Customs entry, no records exist as to the number.

Port of Entry.	Men.	Women.	Children.	Total.	Value of Effects entered at Custom House.
					\$ cts.
Montreal	441	529	779	1,749	33,439 00
Coaticooke	101	96	374	571	7,848 00
Stanstead	34	27	135	196	4,602 00
St. John's, P. Q.	78	69	330	477	27,621 00
Phillipsburg.....	5	5	5	15	644 00
Total.....	659	726	1,623	3,008	74,154 00

No. 3.

ANNUAL REPORT OF THE TORONTO IMMIGRATION AGENT.

(JOHN A. DONALDSON,)

IMMIGRATION OFFICE,
TORONTO, January 2nd, 1877.

SIR,—I have the honour of submitting this, my sixteenth annual report, together with the usual returns.

While regretting to have to report a smaller number of arrivals at this Agency than in some previous years, there was still the very respectable number of 8,937; of these, 6,374 arrived *via* the St. Lawrence, 2,563 *via* the United States, 7,321 remained in Canada and the balance, 1,616, went through to the Western States.

In addition to the arrivals at the Agency, the number of 1802 souls are reported at the various ports of entry in my district, making in all 10,737 souls, (see tables appended herewith.)

Composing the above number were 1,355 Mennonites and 1,167 Icelanders, who settled in the Province of Manitoba. I may state that, as it has appeared the small-pox has broken out among the Icelanders, they were in an exceedingly healthy state, when they arrived at this Station. From every information received from the Mennonites, they are well pleased with the country and are doing remarkably well.

It would have been a more pleasing duty had the number of arrivals been greater, but considering there was such a material falling off of emigration from Europe, Canada has had a fair share when compared with other countries and the United States; and, I can safely add, of those who came to our shores and remained in the country, all were of a most suitable class and found immediate employment on their arrival.

A number of capitalists and tenant farmers who came here made judicious purchases of cleared farms, and others have taken up free grants of land in Muskoka, and are well pleased with their location, more especially since the completion of the Northern Railway to Gravenhurst, and with the admirable steamboat arrangements by Captain Cockburn, the member for the district. Some fifteen hundred new settlers have gone into the district this year, many of them from Ontario—men of experience who understand bush life and are sure to succeed; this will be a great inducement to others to follow.

From the most reliable information that has come under my notice, the amount of capital brought into the country was about \$215,000; of this sum the Mennonites brought with them about \$120,000, and the Icelanders about \$15,000; the balance, some \$80,000, was expended in the purchase of lands, and in business in cities and towns.

In conclusion, I am pleased to be able to state prospects are much better for another year, as, in addition to the large number we may have coming to our shores, dealers will be found in our market in the spring for the purpose of purchasing horses and other stock to take to the English market; this will be a great means of showing the tenant farmers and others intending to emigrate, the quality of stock raised in Canada, as well as proof of the excellent land that will produce such stock.

Every attention has been shown to all parties coming to this Agency, and the strictest economy observed.

All of which is most respectfully submitted.

I have the honour to be, Sir,
Your obedient servant,

JOHN A. DONALDSON,
Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

STATEMENT showing the Number and Destination of Immigrants forwarded from this Agency by Free Passes, for the twelve months ending 31st December, 1876.

Stations.	Adult Passes.	Stations.	Adult Passes.
Agin-court	2	Kingston	60
Allandale	1	Kleinburg	8
Alton	6	Lake Joseph	6
Amaranth	1	Lefroy	2
Angus	3	Limehouse	1
Arthur	1	Lindsay	23
Aurora	4	Listowel	7
Baden	1	London	125
Barrie	14	Malton	8
Beaverton	6	Maintoulin Island	6
Belle River	4	Markham	104
Belleville	26	Meaford	9
Berlin	16	Merriton	6
Bertie	2	Millbrook	1
Bolton	5	Mimico	3
Bracebridge	140	Mono Road	3
Bradford	40	Montreal	43
Bramley	1	Mount Forrest	13
Bratapton	71	Napanee	3
Brantford	8	Newcastle	6
Brockville	7	Newmarket	9
Bronte	6	Niagara	2
Bruce Mines	2	Norval	3
Carlton	4	Oakville	15
Cannington	3	Orangeville	11
Charleston	1	Orillia	40
Chatham	14	Oshawa	3
Chatsworth	11	Ottawa	7
Clifton	17	Owen Sound	43
Clinton	2	Paisley	1
Coboconk	15	Palmerston	3
Cobourg	12	Parry Sound	27
Colborne	2	Peterboro'	3
Collingwood	42	Petrolia	20
Cornwall	6	Port Credit	11
Davenport	5	Port Carling	9
Duffins Creek	2	Port Elgin	4
Dundas	4	Port Hope	5
Eastwood	2	Port Union	1
Elora	2	Prescott	6
Exeter	4	Quebec	5
Fergus	1	Richmond Hill	3
Flesherton	11	Rockwood	2
Galt	7	Rosseau	47
Georgetown	7	Sarnia	13
Gilford	6	Scarboro'	1
Glencoe	3	Sherbrooke	5
Goderich	11	Shelburne	6
Goodwood	3	Southampton	10
Gravenhurst	44	Stayner	6
Grafton	2	St. Catherines	56
Guelph	16	St. Marys	1
Grimsby	1	St. Thomas	2
Hamilton	137	Strathroy	1
Hamburg	6	Stratford	9
Harriston	2	Stouffville	2
Hawkstone	3	Tavistock	2
Humber Summit	1	Teeswater	2
Holland Landing	1	Thornburg	2
Ingersoll	3	Thornbill	10
Jordan	21	Thorold	4
Kerwood	1	Trenton	1

STATEMENT showing the Number and Destination of Immigrants forwarded from this Agency by Free Passes, &c.—*Concluded.*

Stations.	Adult Passes.	Stations.	Adult Passes.
Unionville	1	Whitby.....	3
Victoria Road.....	1	Windsor.....	13
Waldemar	1	Woodbridge	7
Walkerton	2	Woodstock	8
Waterdown	1	Wroxeter	2
Watford	2	Wyoming.....	3
Wellington Square.....	4		
Weston	2	Total.....	1,606
Widder.....	5		

PORT OF TORONTO.

RETURN showing the number of Immigrants arrived at the Port of Toronto, for the year ending 31st December, 1876; their Nationality, and Value of their Effects entered at said Port.

Nationality.	Males.	Females.	Children.	Value.
				\$ cts.
English	103	98	142	18,310 00
Irish	28	23	40	1,205 00
Scotch	14	11	27	3,616 00
Americans (United States).....	123	118	120	23,095 00
French.....	4	5	5	330 00
Germans.....	21	24	28	2,740 00
Russians.....	3	3	7	190 00
Canadians.....	2	2	1	1,150 00
Welsh.....	2	2	4	166 00
	300	286	374	50,802 00

R T OF TORONTO,
December 30th, 1876.

JAMES G. SMITH.
Collector.

PORT OF FORT ERIE.

RETURN showing the number of Emigrants arrived at the Port of Fort Erie, for the Year ending 31st December, 1876; their Nationality, also the Value of their Effects entered at said Port.

Nationality.	Number.	Value.
		\$ cts.
American.....	140	8,325 00
German.....	91	4,140 00
Canadian.....	42	2,115 00
Scotch.....	32	1,770 00
English.....	48	1,760 00
Irish.....	27	945 00
French.....	7	100 00
	387	19,155 00

RICHARD GRAHAM,
Collector.

PORT OF CLIFTON.

RETURN showing the number of Entries passed at this Port by Settlers from the United States and other Countries, and the number of such Settlers; also the Value of the Settlers' Effects, from 1st January to 31st December, 1876.

Nationality.	Number of Entries passed for Settlers' Effects.	Number of Male Adults.	Number of Female Adults.	Number of Children under 14 years.	Total Number of Persons.	Reported Value of Settlers' Effects so imported.
						\$ cts.
Canadian.....	37	37	37	63	137	4,928
United States.....	34	35	35	56	126	8,040
Ireland.....	11	19	14	16	49	1,965
England.....	18	22	22	31	75	3,765
Scotland.....	8	9	9	17	36	2,176
Germany.....	7	7	7	7	23	1,550
Sweden.....	1	1	1	4	6	15
France.....	1	1	2	.....	3	200
	117	135	126	194	455	22,639

CUSTOM HOUSE,
PORT OF CLIFTON,
December 30th, 1876.

WM. LEGGETT,
Collector.

RETURN OF THE TORONTO AGENCY FOR THE YEAR ENDING 31st
DECEMBER, 1876.

1. State the number and nationalities of the immigrants that reached you, the route they came by, and their probable destination ?

Countries.	Via St. Lawrence.	Via States.	Total.	Remained in Canada.	Went to the States.
English.....	1,478	325	1,803	1,803	.....
Irish.....	487	98	585	585	.....
Scotch.....	400	50	450	450	.....
German.....	758	100	858	18	840
Norwegians.....	724	55	779	3	776
French Canadians.....	.....	100	100	109	.....
Russian Mennonites.....	1,355	.....	1,355	1,355	.....
Icelanders.....	1,167	.....	1,167	1,167	.....
Swiss.....	5	33	38	38	.....
	6,374	761	7,135	5,519	1,616
Arrivals <i>via</i> Port of Fort Erie.....	.....	387	387	387	.....
do do Clifton.....	.....	455	455	455	.....
do do Toronto.....	.....	960	960	960	.....
Total.....	6,374	2,563	8,937	7,321	1,616

2. What was their general conduct? How many applied to you for relief? How many were assisted, and in what manner did you dispose of them?—Good—1,772 applied for assistance, and were sent to their several destinations *via* the nearest railways, viz.: 992 men, 319 women, and 461 children; total, 1,772.

3. What description of labour is most required in your District, and how many persons of either sex could you probably find employment for?—At this season of the year there is very little demand for labour, except domestic servants, but no doubt in spring the demand for farm and other labourers will be as great as ever.

4. State as near as you are able what capital has been introduced into your District by immigrants, and how many have purchased land or settled, and in what localities; also add any remarks or suggestions which you may deem desirable?—During the year some \$250,000 were brought in, \$120,000 by Mennonites, and \$15,000 by Icelanders, and taken to the Province of Manitoba, the balance, some \$80,000, by parties from the Old Country, and was expended chiefly in the purchase of lands in the neighbouring townships.

RETURN of the average Wages paid to Labourers, Mechanics, &c.

	Per Diem.	Per Month, with Board.		Per Diem.	Per Month, with Board.
MALES.	\$ cts.	\$ cts.	MALES.—Continued.	\$ cts.	\$ cts.
Bookbinders and Printers.....	1 25	15 to 20	<i>Foundries and Machine Shops.</i>		
Blacksmiths	1 25	15 to 20	Boiler Makers.....	1 75	25 to 30
Bakers.....	1 25	15 to 20	Fitters.....	1 75	25 to 30
Brewers.....	1 25	15 to 20	Moulders.....	1 75	25 to 30
Butchers.....	1 25	15 to 20	Pattern Makers.....	2 00	25 to 30
Brickmakers.....	2 00	35 to 40	Rivetters.....	1 75	25 to 30
Bricklayers or Masons.....	2 50	35 to 40	Turners.....	1 75	25 to 30
Carpenters, House.....	1 50	20 to 25			
do Carriage.....	1 50	20 to 25	<i>Woollen Factories.</i>		
Cabinetmakers.....	1 50	20 to 25	Corders.....	1 25	15 to 20
Coopers.....	1 50	20 to 25	Designers.....	1 25	15 to 20
Coachmen and Grooms.....	1 00	15 to 20	Dyers.....	1 25	15 to 20
Curriers.....	1 25	15 to 20	Finishers.....	1 25	15 to 20
Engine Drivers, per trip.....			Fullers.....	1 25	15 to 20
Farm Labourers, skilled.....	1 00	12 to 16	Spinners.....	1 25	15 to 20
do common.....	0 75	10 to 12	Warpers.....	1 25	15 to 20
Gardeners.....	1 25	15 to 20	Weavers.....	1 25	15 to 20
Millwrights.....	1 50	20 to 25	Woollen Assorters.....	1 25	15 to 20
Millers.....	1 50	20 to 25			
Painters, House.....	1 50	20 to 25	<i>Cotton Factories.</i>		
do Carriage.....	1 50	20 to 25	Card Room Hands.....	1 00	12 to 15
Plasterers.....	2 00	30 to 35	Overlookers.....	1 25	15 to 20
Plumbers.....	1 50	20 to 25	Weavers.....	1 25	15 to 20
Shoemakers.....	1 50	20 to 25			
Sawyers.....	1 25	15 to 20	<i>FEMALES.</i>		
Shipwright.....	1 25	15 to 20	Cooks.....		8 to 10
Stonecutters.....	2 50	35 to 40	Dairymaids.....		6 to 8
Saddlers.....	1 50	20 to 25	Dressmakers and Milliners.....		6 to 8
Stokers, Railroad.....			Household Servants.....		6 to 9
Tanners.....	1 25	15 to 20	Laundry Maids.....		8 to 10
Tailors.....	1 25	15 to 20	Weavers.....		6 to 8
Tinsmiths.....	1 25	15 to 20			
Trimmers, Carriage.....	1 50	20 to 25			
Wheelwrights.....	1 50	20 to 25			
Whitesmiths.....	1 50	20 to 25			

State cost of board and lodging, per week?—Three dollars.

No. 4.

ANNUAL REPORT OF HAMILTON IMMIGRATION AGENT.

(MR. JOHN SMITH.)

IMMIGRATION OFFICE,
HAMILTON, 9th January, 1877.

SIR,—I have the honour to submit the following Report for the year ending December 31st, 1876.

There has been a good demand for all classes of agricultural labourers and female domestic servants, and those having arrived have generally been of a good class, and I have not had any difficulty in locating them; and those of industrious and steady habits have done well, as you will notice by the letters attached enquiring for information respecting the Free Grant Lands. I also enclose a letter from the Mayor of the city showing that the immigrants have been successful in their adopted country.

Owing to the cotton factories working overtime there has been a good demand both for spinners and weavers, and I have found no difficulty in securing employment for good hands to work in the woollen mills; the only difficulty that I have experienced has been with mechanics such as vice and lathe hands, and with this class I have generally succeeded in placing them. There has also been a good demand for common labourers to work on the railroads and other public works in the course of construction.

There are several new branches of mechanical industries commenced here since I made my last report, the principal ones being the Hamilton Tool Company, who have commenced to construct iron railway and road bridges, and T. Cowie & Co., who have constructed works specially for the purpose of manufacturing cast iron pipes of large dimensions, and which has given an impetus to the labour market here.

The immigrants have arrived in good health, and we have had very little sickness amongst them, and I am not aware of any deaths having occurred during the present season.

I have the honour to be, Sir,
Your obedient servant,

JOHN SMITH,
Immigration Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

STATEMENT A—Yearly Return of Arrivals and Departures of Immigrants at the Hamilton Agency, for the year ending 31st December, 1876.

Nationality.	Via St. Lawrence.	Via Suspension Bridge.	Total	Remained in Canada.	Went to the Western States.
English	583	2,770	3,353	2,381	972
Irish	93	164	257	257	.....
Scotch	48	175	223	223	.....
German	43	6,517	6,560	653	5,907
United States Citizens.....	.....	2,708	2,708	2,708	.....
Canadian .....	.....	197	197	197	.....
Other Countries.....	29	179	208	73	135
1876.....	796	12,710	13,506	6,492	7,014
1875.....	1,810	12,745	14,555	6,955	7,600
Decrease	1,014	35	1,049	463	586

STATEMENT B.—Showing the number of Indigent Immigrants assisted, the number of meals and lodgings supplied, and the number of Passes issued by Railways and Steamboats at the Hamilton Immigration Agency, for the year 1876.

1876.	No. of Immigrants.	No. of Passes.	No. of Free Lodgings.	No. of Meals supplied.
January	36	37	36	110
February	41	34	41	150
March.....	20	21	20	72
April.....	36	34	32	108
May.....	184	72	287	997
June.....	153	54	173	579
July.....	78	56	55	181
August.....	70	66	29	116
September.....	62	53	39	156
October.....	45	37	11	69
November.....	51	77	24	101
December.....	26	30	11	45
	802	571	758	2,684

STATEMENT C.—Showing the location of Immigrants through the Hamilton Immigration Agency, for the year ending 31st December, 1876.

STATIONS.	No.	STATIONS.	No.
Brant	58	Montreal	5
Bruce	125	Norfolk	22
Carlton	10	Oxford	190
Dumfries	24	Ontario	108
Essex	122	Peel	16
Frontenac	8	Perth	36
Grey	28	Simcoe	31
Halton	38	Wellington	89
Huron	26	Waterloo	123
Haldimand	43	Wentworth	3,161
Kent	81	Welland	395
Lambton	62	York	849
Lincoln	556		
Middlesex	69	Total.....	6,492
Muskoka.....	217		

STATEMENT D.—Showing the number and destination of Immigrants forwarded from the Hamilton Agency by Free Passes, for the Year ending 31st December, 1876.

STATIONS.	No.	STATIONS.	No.
Belleville.....	2	Montreal.....	5
Belleriver.....	1	Mandamin.....	1
Brownsville.....	6	Moorefield.....	2
Bracebridge.....	9	Niagara.....	4
Brantford.....	5	Norval.....	1
Brampton.....	2	Napanee.....	2
Bronte.....	2	Oshawa.....	1
Brussels.....	4	Owen Sound.....	1
Bluevale.....	1	Port Perry.....	1
Clifton.....	34	Paisley.....	3
Chippawa.....	1	Palmerston.....	3
Collingwood.....	4	Paris.....	23
Chatham.....	1	Prescott.....	2
Caledonia.....	10	Queenston.....	2
Dundas.....	28	Rentville.....	1
Dunnboro.....	2	Rymal.....	1
Deans.....	1	Rosseau.....	1
Drayton.....	5	St. Catherines.....	26
Elora.....	1	St. Thomas.....	8
Essex Centre.....	16	St. Marys.....	5
Fort Erie.....	10	Shelburne.....	2
Fergus.....	2	Simcoe.....	3
Galt.....	5	Southampton.....	5
Guelph.....	8	Sarnia.....	3
Gravenhurst.....	47	Schouberg.....	1
Goderich.....	1	Strathroy.....	1
Grimsby.....	1	Stratford.....	5
Harriston.....	10	Stevensville.....	1
Hornsburg.....	1	Seaforth.....	3
Hespeler.....	1	Toronto.....	88
Hagersville.....	10	Windsor.....	27
Ingersoll.....	4	Whitby.....	1
Jarvis.....	5	Waterdown.....	1
Kincardine.....	4	Winona.....	2
Kingston.....	2	Woodstock.....	2
London.....	62	Woodville Junction.....	1
Listowel.....	2	Wingham.....	2
Lynden.....	2	Wellington Square.....	5
Merriton.....	7		
Melton.....	1	Total.....	571
Mildmay.....	4		

STATEMENT E.—Showing the amount of capital brought into Canada by immigrants and settlers at the Hamilton Immigration Agency, for the years 1875 and 1876.

Month ending.	1875.		1876.		Increase.	Decrease.
	\$	cts.	\$	cts.		
January	6,000	00	11,935	00		
February	7,210	00	27,015	00		
March	36,097	00	20,740	00		
April	29,029	00	35,710	00		
May	32,495	00	51,995	00		
June	28,955	00	33,500	00		
July	29,225	00	33,370	00		
August	22,195	00	43,370	00		
September	34,000	00	18,605	00		
October	36,115	00	28,443	00		
November	16,720	00	21,730	00		
December	51,478	00	16,216	00		
	329,519	00	342,629	00	13,110	00

JOHN SMITH,
Immigrant Agent.

STATEMENT F.—Showing the Expenditure at the Hamilton Immigration Agency, for the year ending December, 1876.

Expenditure.	Amount.		Total.	
	\$	cts.	\$	cts.
Agent's salary	1,000	00		
Interpreter's salary	300	00		
			1,300	00
Fuel	46	60		
Stationery and printing	21	26		
Postage and telegrams	39	36		
Cleaning office and sheds	13	50		
Travelling expenses	35	25		
Incidental charges	24	83		
			180	20
Provisions and lodgings	688	20		
Railway fares for indigent immigrants	427	37		
Moving immigrants and baggage	18	25		
			1,133	82
			2,614	02

JOHN SMITH,
Immigrant Agent.

PORT COLBORNE, 6th January, 1877.

Specimen of Letters of enquired.

DEAR SIR,—Will you be so kind as to furnish me with information regarding the Free Grant Lands, and the means of getting there.

I came out to this country in the steamship "Peruvian," under the auspices of Mr. Banks, the Canada Agent at Boston, Lincolnshire, and I am glad to inform you that we have done well since you located us in the township of Ulverston, and we are much pleased with coming out here, being prosperous in the land of our adoption. I write on behalf of myself and seven other families who are desirous of taking up Free Grant lands. As we have accumulated some live stock to start our farms with, we should like you to let us know if it would be desirous to take it with us. I have a son and daughter in the Old Country, and I hope that we shall be able to get them out to us.

Your kind attention to this, and your past kindness we shall never forget.

Yours truly,

(Signed,) GEORGE COMPTON,
On behalf of myself and seven others.

JOHN SMITH, Esq.,
Immigration Agent, Hamilton.

BROWNSVILLE, DEREHAM TOWNSHIP, 3rd January, 1876.

SIR,—We came out here under the Emigration Department two years ago, and are Joseph Arch men. On arriving at Hamilton we and our families were located by you, and we are glad to inform you that we have done well and better than we expected to do, and we are advising our friends to come out to Canada as it is a good country for agricultural labourers.

Our object for writing to you just now is for information about the Free Grant Lands given by the Government, as we all have been able to save some money to give us a start when we get our grants.

We thank you for your kindness to us when we landed at Hamilton, and we wish you a happy new year.

Yours truly,

(Signed,) WM COMPTON,
Late of Avon, Wiltshire.

" WM. FRY,
Late of Avon, Wiltshire.

" CHAS ROOKE,
Late of Spelsbury, Oxfordshire.

JOHN SMITH,
Immigration Agent, Hamilton, Ontario.

Letter from the Mayor of Hamilton.

MAYOR'S OFFICE, HAMILTON, Ont., 8th January, 1877.

DEAR SIR,—Your favour of the 2nd inst. was duly received, and in reply I beg to state that I have had no application for destitute immigrants for help, during the year 1876, and I am not aware of any being in our city at the present time.

It affords me much pleasure to state that since your appointment to the Immigration Agency, the immigrants arriving here have been so well attended to, and cared for by yourself, there has been no need of their soliciting aid from our city.

Yours faithfully,

(Signed,) GEO. ROACH, Mayor.

JOHN SMITH, Esq.,
Immigration Agent, Hamilton.

No. 5.

ANNUAL REPORT OF OTTAWA IMMIGRATION AGENT.

(Mr. W. J. WILLS.)

GOVERNMENT IMMIGRATION OFFICE,
OTTAWA, 1st January, 1877.

SIR,—I have the honour to report, for your information, a statement of the operations of this Agency for the year ending 31st December, 1876.

The total number of immigrant arrivals were as follows:—

European Immigrants.....	769
From United States.....	1,665
Total arrivals.....	2,534

The value of the effects of the latter, as far as can be ascertained from the various ports of entry, amounted to \$47,641.00.

To these may be added many immigrants who arrive in the city and district without reporting themselves directly to this Agency, and it is only when distress or want of employment overtakes this class, that I have any means of ascertaining that they have arrived.

Temporary relief was granted during the year to 959 souls, equal to 813 adults, who were in actual distress, at a cost of \$2.67 per adult.

	Men	Women	Children	Total
English.....	164	116	196	476
Irish.....	81	92	51	224
Scotch.....	16	6	7	29
Germans.....	28	22	27	77
French.....	96	26	8	130
Swedes.....	10	10	3	23
	395	272	292	959

Owing to the severe commercial depression which prevailed all through the year, and more especially in the early part of it, when the public works for the most part were brought to a standstill, considerable destitution prevailed, although the majority of the recipients were those who had arrived within this year. It was deemed advisable, in a few cases, to extend it to a few actually destitute who had arrived the previous year. The greatest care, however, was exercised in so doing, and it was only in extreme cases that aid was thus afforded. The relief granted was during the winter months.

The demand for labour during the past year fell far short of that in previous years, and the rate of wages was consequently lower. All who arrived here found employment sooner or later, as opportunity offered, at wages varying from, for agricultural labourers, \$10 to \$12 per month, together with board. Common labourers were paid an average \$1.00 per diem without board. In cases in which employment could not be found within the district, I forwarded the applicants to other destinations.

Female domestic servants were not so plentiful as in former years, and the demand for this class was also lighter. Their wages ranged from \$4 to \$6 per month. I might here remark that many of those offering themselves for service had not been accustomed to it previous to their arrival, and, consequently, not giving satisfaction to those employing them, frequently changed their places.

There are a class of mechanics, consisting for the most part of stone masons, who annually return to the Old Country for the winter, and come out again in the spring. Quite a number, also, who were disappointed in obtaining employment here, returned home in the fall. Of this class, I may say, many, finding the depression in Great Britain and Ireland quite equal to that prevailing here, and the price of the necessaries of life higher, will again return to Canada, and be the means of others accompanying them.

I would here state that, during the winter, all able-bodied men, willing to work, are able to procure employment on the Grenville Canal. Married men, with families, however, living in this city, for the most part are unwilling to separate from their families and go there, and these constitute the greater part of those out of employment.

Under Departmental instructions I visited the Counties of Pontiac, Ottawa, Argenteuil, Prescott, Glengarry, Carleton, Lanark and Renfrew, and various places in Western Ontario, for the purpose of inspecting the children brought out by the Misses McPherson and Rye. The result of this inspection is already given to you in a special report, but I would state here that the condition of these children, with scarcely an exception, is all that could be desired; many of them, in fact, are members of the families into which they have been taken, and will become valuable members of the community.

Leave of absence having been kindly granted me by you in the spring, before the bulk of immigrants arrived here, I visited Great Britain and Ireland, and during my stay there had an interview with Lord E. Fitzmaurice, and also with the Rev. H. M. Fletcher, both of whom are deeply interested in immigration to this country. **These gentlemen made many enquiries into the state of immigrants whom they had sent out, and evinced much interest in their welfare.**

The Rev. Mr. Fletcher had a scheme under his consideration for colonization in the North-West, but circumstances prevented him from carrying it into operation during the past year.

I also had several interviews with Mr. J. W. Down, of Bristol, the result of which induced that gentleman to come to Canada during the summer, and, after personally visiting Manitoba, to inaugurate a colonization scheme, in which he is now heartily engaged, with the approval and assistance of the Messrs. Allan Bros., of Liverpool. I trust that this result of my visit will be productive of substantial good, and will merit your approval.

I have to express my thanks to Messrs. Foy, Belfast; Larkin, Dublin; Dyke, Liverpool, and Down, Bristol, for the energy they have always shown in providing a good class of emigrants for Canada, and for the promptness with which they have dealt with any communications I have addressed to them.

Mr. Down has from time to time sent out numbers of valuable immigrants to this district, and being a thorough practical man, with a knowledge of the country, obtained by a residence of some years here, sends only those who can meet its requirements.

All of which is most respectfully submitted.

I have the honour to be, Sir,
Your obedient, humble servant,

W. J. WILLS,
Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

No. 6.

ANNUAL REPORT OF KINGSTON AGENT.

(MR. R. MACPHERSON.)

GOVERNMENT IMMIGRATION OFFICE,
KINGSTON, 5th January, 1877.

SIR,—I have the honour to submit, for your information, my annual statements for the year ending 31st December, 1876, which embrace the various transactions during that period, viz:—

1st. Statement showing the number of Immigrants arrived at the Kingston Agency during the year 1876, their nationality and the number assisted with free passes.

2nd. Statement of monthly arrivals within this Agency during the past year, the number fed and distributed each month, also number of meals furnished.

3rd. Statement shewing the number and destination of immigrants forwarded from this office during the year 1876.

4th. Statement of the monthly arrivals within this Agency classified as to sexes, nationality, occupation and destination.

5th. Statement showing number of settlers from the United States, as reported by the collectors of Customs at the ports of entry within this Agency, for the past year, and value of their effects.

6th. Statement of expenditure on account of immigration for the year 1876, as paid by the Dominion and Ontario Governments, respectively.

The demand for all classes of labour within this Agency has been limited during the past year. I could, however, have placed more farm labourers and female domestic servants, had they arrived early in the season.

The general health of the immigrants has been excellent, there being no special cases of illness to report, and no deaths to my knowledge.

The expenditure for the year amounted in transport to \$362.79, and in provisions, meals, &c., \$225.95.

I visited during the year at their several homes upwards of 500 children brought to Canada by Miss MacPherson, by far the greater portion of whom are placed with farmers, out of the way of temptation, and in most cases doing exceedingly well in comfortable homes, well cared for, and becoming a valuable acquisition to the country. For a more complete account of this work I would refer you to my report of 13th March last.

All of which is most respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

R. MACPHERSON,
Government Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

STATEMENT showing the Number of Immigrants arrived at the Kingston Agency for the twelve months ending 31st December, 1876, and their Nationality, the Number assisted with Provisions, and with Free Passes by Railways, or other Conveyances, from this Agency to their respective places of destination.

Country From.	Arrivals <i>via</i> the St. Lawrence.	Arrivals <i>via</i> the United States.	Total.	Remained in the Province of Ontario.	Went to the United States.	Number assisted with Provisions.	Number assisted with Free Passes.
England.....	521	93	614	} 858	7	237	325
Ireland.....	86	24	110				
Scotland.....	119	16	135				
Germany.....	4	7	11				
Norway.....							
Other Countries.....	19	16	35				
Settlers from U.S., reported by Collectors of Customs.....		1,521	1,521	1,521			
Total	749	1,677	2,426	2,379	7	237	325

NOTE.—Forty passed to the Province of Quebec.

STATEMENT showing the total Number of Immigrants arrived and remained to be dealt with at the Kingston Agency, for the twelve months ending 31st December, 1876.

Months.	<i>Via</i> St. Lawrence.	<i>Via</i> the United States.	Total.	Number Fed.	Number Distributed by Free Passes.	Number of Meals.
January.....	14	18	32	12	18	} 87
February.....	10	19	29	13	15	
March.....	7	22	29	15	24	
April.....	22	43	65	40	45	83
May.....	144	27	171	26	20	39
June.....	137	7	144	21	28	64
July.....	105	5	110	14	27	48
August.....	76	5	81	40	36	176
September.....	86	6	92	42	64	94
October.....	83		83	14	27	23
November.....	57	2	59		11	
December.....	6	2	10		10	
Settlers from the United States, reported by the Collector of Customs.....		1,521	1,521			
Total	749	1,677	2,426	237	325	614

STATEMENT showing the Number and Destination of Immigrants forwarded from this Agency by Free Passes, for the twelve months ending 31st December, 1876.

Stations.	Adult Passes.	Stations.	Adult Passes.
Prescott	14½	Cornwall	11
Ottawa	14½	Whitby	13
Toronto	70½	Montreal	30½
Parham	2½	Lancaster	10
Sand Point	1	Cobourg	6
Picton	2	Lyn	½
Omeme	2	Brighton	2
Brockville	8½	Port Hope	12
Darlington	2	Collin's Bay	1
Sharbott Lake	4	Tyendinaga	1
Belleville	20½	Newcastle	1
Pakenham	2	Oshawa	6
Arnprior	½	Morrisburg	1½
Bath	2	Duffin's Creek	1½
Harrowsmith	1		
Napanee	1		
Lansdowne	1		
		(Total	246½

MONTHLY RETURN of Immigrant Arrivals and Departures at the Kingston Immigration Agency, for the year ending 31st December, 1876.

Months.	Number of arrivals via the St. Lawrence.		Number of arrivals via the United States.		Sexes.		Children.	Total number of Souls.	Nationalities.					Trades or Occupations.						General Destination.						
	Male.	Female.	Male.	Female.	English.	Irish.			Scotch.	Germans.	Scandinavians.	French and Belgians.	Other Countries.	Farmers.	Farm and general Laborers.	Mechanics.	Clerks, Traders, &c.	Female Servants.	N.S.	N.B.	P. E. I.	Quebec.	Ontario.	Manitoba.	British Columbia.	Eastern States.
January, February and March.....	31	8	59	11	90	60	13	9	4	4	4	49	21	2	7	7	7	5	85	5	85	.....	.....	.....	.....	.....
April.....	22	9	43	10	65	41	6	5	1	2	10	41	5	2	5	5	5	11	54	11	54	.....	.....	.....	.....	.....
May.....	144	17	27	52	171	122	20	26	1	2	2	86	19	6	2	2	2	164	164	7	164	.....	.....	.....	.....	.....
June.....	137	17	77	50	144	106	9	28	1	2	2	64	15	5	15	15	15	1	143	1	143	.....	.....	.....	.....	.....
July.....	105	14	57	39	110	74	14	21	1	4	3	50	11	3	10	10	10	1	110	1	110	.....	.....	.....	.....	.....
August.....	79	12	5	24	81	54	10	9	1	4	3	33	9	6	5	5	5	1	80	1	80	.....	.....	.....	.....	.....
September.....	86	6	44	36	92	49	18	18	.....	5	2	32	11	3	4	4	4	18	74	18	74	.....	.....	.....	.....	.....
October.....	83	10	50	23	83	60	12	11	.....	.....	.....	44	7	2	8	8	8	1	83	1	83	.....	.....	.....	.....	.....
November.....	57	7	21	12	59	41	8	9	1	.....	.....	24	7	4	5	5	5	1	58	1	58	.....	.....	.....	.....	.....
December.....	8	1	2	1	10	7	.....	1	2	.....	.....	6	1	2	2	2	2	3	7	3	7	.....	.....	.....	.....	.....
Settlers from the United States.....	749	106	1,521	268	2,426	614	110	135	11	19	16	429	106	33	61	61	61	40	1,521	40	1,521	.....	.....	.....	.....	.....

STATEMENT showing number of Settlers from the United States as reported by the Collectors of Customs at the different Ports of Entry within the Kingston Immigration Agency, for the year 1876, and value of their effects.

Ports of Entry.	No. of Settlers.	Value of Effects.	
		\$	cts.
Whitby.....	60	2,409	00
Oshawa.....	52	1,345	00
Bowmanville.....	113	1,260	00
Newcastle.....	23	800	00
Port Hope.....	153	5,420	00
Cobourg.....	131	806	00
Cramahé.....	37	1,253	00
Brighton.....	54	722	00
Trenton.....	30	182	00
Belleville.....	375	5,030	00
Napanee.....	83	1,465	00
Kingston.....	277	8,123	00
Gananoque.....	101	3,122	00
Pictou.....	32	1,385	00
Total.....	1,521	33,322	00

STATEMENT showing the Expenditure at the Kingston Immigration Agency for the twelve months ending 31st December, 1876, as paid by the Dominion and Ontario Governments respectively.

Service.	Amount paid by		Total.
	Dominion.	Ontario.	
	\$	cts.	\$
Transport of Immigrants.....			362 79
Meals, bread, provisions, lodgings, &c.....	92 50	133 45	225 95
Contingent, fuel, water, postage, repairs, telegrams, light, furnishings, cleaning building, travelling expenses, &c.....	585 52		585 52
Total.....	678 02	496 24	1,174 26

STATEMENT for 1876, showing the number of persons from the United States who have passed entries at the several ports below, as intending to become settlers in Canada, and the value of their effects; also the approximate number who have arrived without making entries, not having effects of any considerable value, but who intend remaining in the Dominion.

Port of Entry.	Approximate number who have not reported value.	Adult males reported.	Adult females reported.	Children reported.	Total.	Approximate number of Americans.	Approximate number of Canadians returned.	English.	Irish.	Scottish.	German.	Other Countries.	Value of Effects.
Whitby	24	10	9	17	60	18	25	16	.....	1	.....	.....	2,409 00
Oshawa	25	7	7	13	52	36	10	2	.....	4	.....	.....	1,345 00
Bowmanville	65	24	14	10	113	76	37	.....	.....	.....	.....	.....	1,260 00
Newcastle	6	6	7	7	23	13	2	7	1	.....	.....	.....	800 09
Port Hope	50	45	45	13	153	46	86	14	6	.....	.....	.....	5,420 00
Cobourg	100	14	14	8	131	30	66	20	11	4	.....	.....	806 00
Cramahe	12	9	8	8	37	8	16	7	4	2	.....	.....	1,253 00
Frighton	40	10	4	.....	54	10	44	.....	.....	.....	.....	.....	722 00
Trenton	16	3	2	9	30	15	15	5	4	3	.....	.....	182 00
Belleville	200	44	49	82	375	20	120	70	94	2	11	3	5,030 00
Napanee	50	12	11	10	83	31	38	3	11	.....	.....	.....	1,465 00
Kingston .....	.....	77	76	124	277	86	191	.....	.....	.....	.....	.....	8,123 00
Ganancque	25	23	25	28	101	49	52	.....	.....	.....	.....	.....	3,122 00
Pictou	4	12	13	3	32	3	29	.....	.....	.....	.....	.....	1,385 00
Total	611	291	284	335	1,521	426	731	144	131	16	11	62	\$33,322 00

No. 7.

ANNUAL REPORT OF LONDON IMMIGRATION AGENT.

(Mr. A. G. SMYTH.)

GOVERNMENT IMMIGRATION AGENCY.

LONDON, ONT., 6th January, 1877.

SIR,—I have the honour to submit, for your information, my Annual Report upon the working of this Agency, for the year ending 31st December, 1876.

Schedule "A" gives the total number of arrivals, their nationality, and the number assisted with meals and free passes to the place of their destination.

Schedule "B" the arrivals monthly, by which will be seen the regular flow to this section, and that the months of April, May and June furnished the largest number of settlers last season.

Schedule "C" gives the number and destination of those forwarded by free passes from this Agency.

The full annual statement gives a full recapitulation of the work, shewing number, sexes, nationalities, trades or occupations, and general destination, and although the number of arrivals is less this year than last, a greater proportion has settled in this part of Canada than formerly, which may be accounted for in some measure by the fact of so many families having heretofore settled in this section who did well, advising their friends who may be coming out, to settle in the same locality.

The immigrants arriving this season were generally of that class most useful for this country, and in a very healthy condition; there are none out of employment at present, to my knowledge, who have been assisted at this Agency. Agricultural labourers and domestic servants can still be comfortably settled in this District; as formerly, the demand for that class much exceeds the supply. A number of agriculturists who came out to this Agency in 1874 are now settled on their own land, and others who came later are making preparations to do the same.

It is very pleasing to meet many who have settled in this locality, and hear them express their satisfaction at the kindness received, and the comfortable living they are now making in Canada.

During the past season quite a number arrived who needed no Government assistance, and their amount of wealth would exceed a hundred thousand dollars.

Over two thousand have also entered the country by the ports of Sarnia, Collingwood and Windsor, bringing with them household effects only valued at about \$100,000, as per schedules herewith enclosed. This of course will not include ready money, which most of them had; and also at the lowest calculation about three hundred entered these ports who had no effects of value to enter.

The depot at this Agency requires some additions, which has been reported on

I have the honour to be, Sir,

Your most obedient servant,

A. G. SMYTH,

Dominion Emigration Agent.

The Hon. the Minister of Agriculture,
Ottawa.

YEARLY RETURNS of Immigrant Arrivals and Departures at London Immigration Agency for the Year ending 31st December, 1876.

Months.	Number of Arrivals from the St. Lawrence.		Number of Arrivals from the United States.		Sexes.		Total number of Souls.	Nationalities.					Trades or Occupation.				General Destination.					
	English.	Irish.	Scottish.	German.	Scandinavian.	French and Belgian.		Other Countries.	Farmers.	Farm and General Laborers.	Mechanics.	Clerks, Teachers, &c.	Female Servants.	N.S.	N.B.	P. E. I.	Quebec.	Ontario.	Manitoba.	British Columbia.	Eastern States.	Western States.
January	23	37	11	8	56	33	9	10	4	9	25	4	3	42	14							
February	40	74	39	17	74	39	17	18	8	6	21	11	3	61	13							
March	37	85	83	27	132	43	17	18	54	5	67	9	2	58	74							
April	65	205	116	93	61	270	47	32	166	11	84	9	12	102	168							
May	124	319	249	110	81	443	182	71	118	9	201	28	11	217	225							
June	125	169	167	77	60	304	126	38	93	7	149	2	9	211	86							
July	55	132	90	56	41	187	67	27	11	14	56	9	4	154	65							
August	96	69	83	43	39	165	80	33	11	14	56	9	4	157	11							
September	83	89	89	46	37	172	111	29	9	17	49	15	8	157	11							
October	52	41	49	26	18	93	38	17	17	7	32	3	7	78	15							
November	44	52	37	31	28	96	48	22	17	9	23	5	8	96	15							
December	33	40	28	19	26	73	44	9	10	9	15	3	1	70	3							
Settlers from United States reported by Collectors of Customs	787	1278	1069	558	438	2065	856	314	334	561	1116	719	109	66	99	1420	38	18			589	
Total						2390																4455

STATEMENT showing the number of Immigrants arrived at the London Agency, for the Year ending 31st December, 1876, and their Nationality, the number assisted with Provisions, and with Free Passes by Railways, or other conveyances, from this Agency to their respective places of destination.

Country from.	Arrivals <i>via</i> the St. Lawrence.	Arrivals the United States.	Total.	Remained in the Province of Ontario.	Went to the United States.	Number assisted with Provisions.	Number assisted with Free Passes.
England.....	464	392	856	840	16	503	167
Ireland.....	142	172	314	273	41	113	
Scotland.....	129	205	334	306	28	63	
Germany.....							
Norway.....							
Other Countries.....	52	509	561	57	504	21	
Total.....	787	1,278	2,065	1,476	589	700	167

STATEMENT showing the total numbers of Immigrants arrived and remained to be dealt with at the London Agency, for the Year 1876.

Months.	<i>Via</i> St. Lawrence.	<i>Via</i> United States.	Total.	Number Fed.	Number assisted with Free Passes.
January.....	23	33	56	11	167
February.....	40	34	74	13	
March.....	37	95	132	2	
April.....	65	205	270	230	
May.....	124	319	443	49	
June.....	135	169	304	36	
July.....	55	132	187	27	
August.....	96	69	165	73	
September.....	83	89	172	86	
October.....	52	41	93	57	
November.....	41	52	96	63	
December.....	33	40	73	53	
Total.....	787	1,278	2,065	700	167

STATEMENT shewing the number and destination of Immigrants forwarded from this Agency by Free Passes, for the twelve months ending 31st December, 1876.

Stations.	Adult Passes.	Stations.	Adult Passes.
Hamburgh	1	Belle Rivière.....	1
St. Thomas	41	Essex Centre.....	3
Bismarck	3	Dundas.....	3
Ingersoll	2	Exeter.....	17
Toronto.....	12½	Lucan.....	2
Berlin.....	2	Longwood	3
Watford	4	Dutton.....	5
Stratford.....	3	Komoka.....	1
Goderich.....	6½	Centralia.....	1
Chatham.....	21½	St. Marys.....	3
Brucefield	1	Parkhill	4
Wyoming	½	Hyde Park.....	2
Colchester.....	4	Wingham.....	1
Thorndale.....	1	Hamilton.....	2
Dorchester.....	3	Brecon.....	1
Guelph.....	3	Mount Bridges.....	1
Brantford.....	5		
Port Stanley.....	1		
Harriston.....	2		
		Total.....	167

RETURN of Settlers and the value of their Effects arriving at the Port of Collingwood, from 1st January to 31st December, 1876.

	Number.	Canadian.	English.	Irish.	Scotch.	Other.	Male.	Female.	Children.	Value.
1st January, 1876, to 31st December, 1876.....	66	9	2	25	7	23	20	18	28	\$ cts. 945 00

RETURN of Settlers and the value of their Effects arriving at the Port of Windsor,
Ontario, from 1st January to 31st December, 1876.

	Number.	Canadian.	English.	Irish.	Scotch.	Other.	Male.	Female.	Children.	Value.
										\$ cts.
January	58	15	2	2	1	38	19	19	20	2,665 00
February	77	38	2	1	4	32	21	24	32	8,530 00
March	71	27	4	1	.....	39	22	21	28	3,050 00
1st Quarter	206	80	8	4	5	109	62	64	80	14,245 00
April	101	39	.....	3	4	55	33	35	33	6,198 00
May	135	48	13	17	4	53	38	46	51	5,494 00
June	79	30	8	1	1	39	18	29	32	4,170 00
2nd Quarter	315	117	21	21	9	147	89	110	116	15,862 00
July	46	8	2	.....	2	34	21	14	11	1,650 00
August	82	13	21	1	.....	47	25	27	30	6,045 00
September	78	21	5	3	4	45	19	27	32	3,583 00
3rd Quarter	206	42	28	4	6	126	65	68	73	11,278 00
October	131	54	13	4	.....	60	38	42	51	10,058 00
November	114	52	7	4	3	48	36	39	39	3,615 00
December	38	23	1	.....	.....	14	12	14	12	2,385 00
4th Quarter	283	129	21	8	3	122	86	95	102	16,058 00

RETURN of Settlers and the Value of their Effects arriving at the Port of Sarnia, Ontario, from 1st January to 31st December, 1876.

	Number.	Canadian.	English.	Irish.	Scotch.	Other.	Male.	Female.	Children.	Value.
										\$ cts.
January	101	74	.....	4	5	18	27	31	43	2,920 00
February	56	30	4	10	3	9	16	16	24	1,630 00
March	110	63	16	18	.....	13	25	29	56	4,435 00
1st Quarter	267	167	20	32	8	40	68	76	123	8,985 00
April	40	21	14	1	.....	4	10	12	18	4,886 00
May	150	100	7	2	18	23	51	48	51	5,120 00
June	141	90	28	5	10	8	39	37	65	5,074 00
2nd Quarter	331	211	49	8	28	35	100	97	134	15,081 00
July	62	46	.....	9	2	5	20	18	24	3,625 00
August	90	71	1	3	8	7	24	26	40	3,545 00
September	216	162	20	15	2	17	56	60	100	5,165 00
3rd Quarter	368	279	21	27	12	29	100	104	164	12,335 00
October	161	96	32	14	.....	19	49	47	65	5,525 00
November	61	35	5	4	5	12	17	20	24	2,105 00
December	126	77	5	11	.....	33	39	32	55	4,160 00
4th Quarter	348	208	42	29	5	64	105	99	144	11,790 00

A. G. SMYTH,
Government Immigration Agent.

LONDON, ONT., January, 1877.

No. 8.

ANNUAL REPORT OF THE SHERBROOKE AGENT.

(MR. H. HUBBARD.)

GOVERNMENT IMMIGRATION OFFICE,
SHERBROOKE, P. Q., 28th December, 1876.

SIR,—I have the honour to submit the Annual Report of this Agency, for the year now closing.

The unusual depression in business has tended greatly to diminish the influx of immigrants to this section, the demand for labour having been small. Nearly every month, however, we have had some arrivals (some of them good families of settlers), though the number has been much smaller than during some previous years. It is hoped that the anticipated re-building of the Canadian Meat and Produce Company's works will tend to revive local business in the coming spring. The following is a concise statement of arrivals and of expenditure:

NUMBER OF ARRIVALS.

Men	37
Women	17
Children	25
	—
Total.....	79

English	18
Irish	6
Scotch.....	29
French, etc.....	22
Others.....	4
	—

Total..... 79

Of the men, 9 were mechanics, the others were farmers or labourers.

EXPENDITURE.

Cost of supplies for Home, and small expenses.....	\$200 19
Free transport.....	27 81
Salaries.....	592 50
	—
Total (charged to your Department).....	\$820 50
Transport, etc., to Quebec Department.....	124 25
	—
Total.....	\$944 75

I have the honour to be, Sir,
Your obedient servant.

H. HUBBARD,
Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

No. 9.

ANNUAL REPORT OF THE WINNIPEG AGENT

(MR. WM. HESPELER.)

GOVERNMENT IMMIGRATION OFFICE.

WINNIPEG, 26th December, 1876.

SIR,—I have the honour to submit the following Report of this Agency for the year 1876:—

All the immigrants that arrived at this Agency during the present year came via the United States, the former Government Road (Dawson road) having been closed.

The number accommodated at the sheds during the season are as follows:—

Canadian Provinces	256
United States.....	145
Great Britain.....	19
Iceland.....	1,226
Mennonites from Russia.....	931
Total.....	2,577

I can safely state a further immigration of from 1,200 to 1,500 souls, who did not make use of the Government Immigration Sheds, but of whom the greater number were facilitated through this office.

I also beg leave to report the immigration of 322 French Canadians, most of whom came from the New England States, and on their arrival here were taken in charge by the Manitoba Colonization Society of St. Boniface, where the Society erected a most creditable building for the accommodation of such immigrant cost of \$2,500.

The Icelandic immigrants were forwarded to their settlement as soon as circumstances would permit. A great drawback, however, was, in many instances, the poor health in which a large number arrived here, which is fully stated in Dr. Lynch's report of November last, and forwarded to you by me.

The Mennonites who arrived during the present year at this Agency settled upon the Reserve set apart for them on the east side of the Red River. The available land upon said reserve is now almost entirely settled.

There are at present 35 villages within the said reserve, averaging 20 houses in each village, with in all 5,000 acres under cultivation by next season.

The Mennonite settlement near Scratching River consists of two villages, in all 30 houses, which will have 900 acres under seed by next spring.

The new Mennonite Reserve of 17 Townships (Dufferin Reserve) had, during the present year, an increase of immigration to the extent of about 80 families, making in all a population of about 380 families settled in 18 villages, with 1,500 acres of land broken and ready for seed.

The returns of the crops in general within the Province are very satisfactory, although having suffered from the effects of unusual heavy rains.

The average product per acre is as follows:—

Wheat, 32 bushels.

Barley, 42 “

Oats, 45 “

Peas, 30 “

Potatoes, 250 “

Turnips, 600 “

1 The total yield of the Province is estimated to be about the following:—

Wheat, 480,000 bushels.

Barley, 173,000 “

Oats, 380,000 “

Peas, 45,000 “

Other Grains, 5,000 bushels.

Potatoes, 460,000 “

Turnips and other roots, 700,000 bushels.

4 The liberal supplies of seed-grain, as well as food, loaned by the Government to the grasshopper sufferers last season, is in a great measure the cause of the existing good prospects of the Province.

The prospects for the coming year excel those of any previous one, as there is every reason to consider the Province freed from the dangers of the grasshopper plague, together with the equal prospects of a very large flow of immigration.

I have the honour to be, Sir,

Your obedient servant,

WM. HESPELER

Agent.

To the Honourable

The Minister of Agriculture,
Ottawa.

No. 10.**ANNUAL REPORT OF THE HALIFAX AGENT.****(MR. EDWIN CLAY.)**

**GOVERNMENT IMMIGRATION OFFICE,
HALIFAX, 12th January, 1877.**

SIR,—I have the honour to submit, for your information the Annual Report of the working of this Agency for the year ending 31st December, 1876.

I have to report a large falling off in the arrivals for 1876 as compared with 1875, the total remaining in the Province for 1876 being only 463 against 1,259 for 1875, a decrease of 796; those from the States are not included in this.

I herewith enclose a statement of the immigration for 1876, which I trust will prove satisfactory.

I have the honour to be, Sir,
Your obedient servant,

EDWIN CLAY,
Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL RETURN of Immigrant Arrivals and Departure at Halifax, Nova Scotia, Immigration Agency, for the Year ending 31st December, 1876.

Number of arrivals via the St. Lawrence.	Sexes.			Total number of Souls.	Nationalities.							Trades or Occupations.						General Destination.							
	Males.	Females.	Children.		English.	Irish.	Scotch.	(Germans.	Scandinavians.	French and Belgians.	Other Countries.	Farmers.	Farm and General Laborers.	Mechanics.	Clerks, Traders, &c.	Female Servants.	N.S.	N.B.	P. E. I.	Quebec.	Ontario.	Manitoba.	British Columbia.	Eastern States.	Western States.
10	320	90	106	516	409	18	21	13	.....	10	45	18	210	53	20	44	463	47	.....	3	1	1	1	.....	.....

EDWIN CLAY,
Agent.

ANUARY, 77.

No. 11.

ANNUAL REPORT OF THE ST. JOHN, N.B., IMMIGRATION AGENT.

MR. ROBERT SHIVES.)

GOVERNMENT IMMIGRATION OFFICE,
ST. JOHN, 2nd January, 1877.

SIR.—I have the honour to submit, for your information, a Report of the transactions at this Agency for the year 1876.

During the past year, as will be seen from the number of arrivals here enumerated, the emigration to the Province from Great Britain has fallen off to a large extent, when compared with former years. In 1873 and 1874, the numbers respectively were 1,129 and 702, in 1875 they had fallen to 250; this number, however, does not include those of Canadian origin, who came into the Province from the United States, and was estimated at 522.

Immigration for 1876.

Arrived <i>via</i> United States.....	32
“ St. Lawrence.....	2
“ Dominion Ports.....	102

Sexes.

Males.....	67
Females.....	34
Boys, under 14.....	20
Girls, under 14.....	15

Nationalities.

Natives of England.....	73
“ Scotland.....	35
“ Ireland.....	13
“ Scandinavia.....	15

Occupations.

Farmers.....	11
Farm Labourers.....	35
Mechanics.....	13
Traders, &c.....	8

The demand for farm labourers and boys and girls has fallen off considerably from former years, but still it has been in excess of the supply.

Owing to the depression existing among the working classes, large numbers have applied for land, under the Free Grants' Act; and in all the counties where tracts have been laid off by the Government, many have already commenced to clear and cultivate their lots.

NUMBERS OF PERSONS REPORTED AT THE VARIOUS CUSTOM HOUSES TO HAVE ENTERED
NEW BRUNSWICK IN 1876.

H. Webber, Esquire, Collector of Customs, at St. Stephens, reports that the following entries have been made at his office by immigrants during the year 1875.

	Males	Females.
Immigrants born in the Dominion.....	27	21
" " United States.....	15	12
" " Great Britain.....	2	1

And that the value of the effects brought into the country by these immigrants, is \$2,665.00.

Samuel Watts, Esquire, Collector at McAdam, reports that at least 100 Canadians of all ages, have returned, with effects to the value of \$2,000; making the total value at these Ports, \$4,665.00.

Captain H. W. Chisholm, Agent of the International line of Steamers, which make three trips each week from Boston to St. John, authorises me to report the arrival here of 600 Canadians from the United States; this comprises men, women and children; which, with those *via* St. Stephen and McAdam, makes a total of 748.

Recapitulation.

Immigrants of Canadian origin.....	748
" English " 	76
" Scotch " 	35
" Irish " 	13
" Scandinavian " 	15
" American " 	27

914

I have the honour to be, Sir,
Your very obedient servant,

ROBERT SHIVES,
Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 12.

QUARANTINE STATION, GROSSE ISLE, ANNUAL REPORT, 1876.

(FREDERICK MONTIZAMBERT, ESQ., M. D.)

QUEBEC, 31st December, 1876.

SIR,—I have the honour to submit herewith the annual returns of the proceedings and expenditure of the Quarantine Station, Grosse Isle, for the year 1875.

The barque "Underwriter," Robertson, Master, from Rio de Janeiro, 29th April, in ballast, with a crew of 21, came into quarantine on the 11th June. Yellow fever had been prevalent at Rio whilst the vessel was there. There was no sickness during the voyage.

The coasting steamer "Marie Louise," Mackinnon, Master, from Pigou, October 10th, with a cargo of fish, came into quarantine on the 27th October. When the schooner left Pigou, on the north shore of the St. Lawrence, there were 30 persons on board, 26 passengers and 4 crew. Three of the crew, the captain, mate and one sailor, were then ill with small-pox. The captain, St. Pierre, died the next day, October 11th. On the 12th the vessel reached Matane, and there the dead body of Captain St. Pierre, the sailor with small-pox, one other sailor and four passengers were landed. The mate, Mackinnon, though ill with small-pox, remained on board. The vessel left Matane on the 13th October, reached St. Thomas on the 24th, and there landed 19 passengers and took on one. She came over to Grosse Isle on the 27th, having then on board the acting captain, Mackinnon, still suffering from small-pox, and four passengers helping to work the vessel. I took Mackinnon into hospital and vaccinated the others. The vessel and its contents were thoroughly cleansed, fumigated and disinfected. She was released from quarantine on the 31st of October. Mackinnon remained in quarantine until the 13th of November. The landing of the sick at Matane, and of passengers from this infected vessel at that place, and at St. Thomas, is much to be regretted in the interest of the public health of the country in general, and of those places in particular.

Yellow fever and small-pox have thus been the only contagious diseases on account of which vessels have presented themselves for quarantine inspection at Grosse Isle this year.

The seasons' record is the smallest of any year since the Station was established. No suspected persons were landed to perform quarantine, and only one person was admitted to hospital. The fleet entering the port of Quebec this year has been a large one. It is certainly contrary to all previous experience to believe that some 1,200 vessels from sea—not counting the Canadian mail steamers, which are exempt from all quarantine—carrying, at least, 30,000 seamen and passengers, have made their voyages to Quebec this season without one single case of contagious disease, or one single death from any cause having occurred on board any one of them. I feel it my duty to state that, in my opinion, such a report as I have this year to submit points very strongly to continued evasion of quarantine inspection at Grosse Isle by vessels liable thereto. The opportunities and facilities for such evasion, under the existing Quarantine Act and Regulations, I had the honour respectfully to bring under consideration in my annual report for last year.

The new arrangement by which the in-coming English mails are landed at Rimouski during the summer, would seem to remove any reason that may heretofore have been supposed to exist, for the exemption of the Canadian mail steamers from quarantine regulations applying to all other vessels coming up the St. Lawrence from below Grosse Isle.

On the night of the 15th of November, the old wooden tenement, occupied by the hospital orderlies and nurses, was completely destroyed by fire. The fire seems to

have taken between the ceiling and roof, and had gained such headway before the inmates were aroused from sleep, that the building could not be saved. A strong wind was blowing at the time, carrying burning particles in quantities on to the neighbouring hospitals and other buildings. All the employées were quickly on the ground, with the Station "Fire King Extinguisher," buckets, &c., and by strenuous and long continued exertions the fire was confined to the building in which it originated. I trust that you will be pleased to take measures for the erection of buildings for these burned out employées with the least possible delay.

I have again to bring under consideration the necessity of increasing the western or deep water pier at the Station, so that sea-going vessels may be able to make use of it. In my last annual report I briefly alluded to the uses and defects of the Station piers. I beg now to enter more fully into this very important subject.

There are two piers at the Station. The western or deep water pier, used for quarantine purposes only, and therefore shut off from all outside communication, and the eastern or local steamboat pier, used occasionally for the landing of sick, when the state of the weather or of the tide prevents their being landed on the beach, in the immediate vicinity of the hospitals—and regularly for the delivery of stores, and for the embarkation of hospital convalescents by the weekly steamboat. This pier can, when necessary, be kept comparatively free from infection.

1. *The Western or Deep Water Pier.*—At this pier each vessel performing quarantine has to land all her passengers—not actually labouring under disease—with all their effects, or such part as may be necessary, of the cargo and other contents to be purified and disinfected. For this purpose the vessel should come in to the pier. The end of the pier, however, is only forty-nine feet wide. The depth of water at the extremity is nearly fifteen feet at low tide, but within half a ship's length to the westward, in line with the face of the pier, the water shoals to seven feet at low tide. Large vessels, therefore, do not come in to the pier. The landing and re-embarking have to be done in small boats. Even under the most favourable circumstances this adds a couple of days to the detention in quarantine of the vessel and all on board; and in rough weather landing in small boats becomes dangerous, and often has to be deferred for days, to the very great inconvenience of all concerned. When several vessels are in quarantine at the same time the delay to the vessels, and the responsibilities and difficulties of the Medical Superintendent, in carrying out the quarantine service, are increased manifold by the imperfections of the present pier. Landing in boats, the passengers, &c., of one vessel occupy the pier and its shore approaches for several days. During this period the next vessel must be idle, waiting its turn, and its passengers must be kept cooped up in the infected vessel. Similarly for re-embarking when purified, disinfected, and ready to be released from quarantine, the passengers of one vessel occupy the pier and its approaches for several days, and they may remain on my hands for days, although ready to proceed, because the pier is occupied by the passengers, &c., of a newly arrived vessel landing, or by another set previously released from quarantine, who are still re-embarking. (Simultaneous use of the pier and its approaches by two or more vessels cannot be permitted, as people from a ship with say typhus or measles, or cholera, could not mingle with those of a vessel with say yellow fever or small pox, or scarlet fever, without great risk of inter-communicating disease; and besides this, hopeless confusion of luggage, effects &c., could scarcely fail to occur.) With an extension of the pier so as to allow a sea-going vessel to lie at the end of the block, the passengers of a vessel could be at once landed from it with their effects, and be placed in their allotted shed. The vessel could then haul off into the stream, and leave the pier and its neighbourhood clear for another. The whole process could be performed in a few hours, instead of occupying several days with small boats as at present, and similar advantages would be gained in getting off persons released from quarantine by their speedy re-embarkation.

2. *The Eastern Pier*, chiefly used as stated above, for the reception of supplies, and discharge of hospital convalescents by the local weekly steamboat. (A second pier is essential for these purposes, as the western, or quarantine pier proper is liable

at all times to be covered with infected persons and things landing from infected vessels in its immediate neighbourhood; so that the touching of the local—St. Thomas—steamboat at, or the departure of recovered hospital patients by it, would, in my opinion, be quite unjustifiable.) The defects of this eastern pier are, that it is too low, being submerged at high tides; that the approach to it is also submerged for about 100 feet at high tide; that the slip is quite too steep—12 inch treads and 12 inch risers—and that there are boulders at the end, on which the steamboat “Montmagny” has repeatedly struck at low tide.

I would therefore most earnestly recommend:—1. For the western or deep water pier, such an extension in length as to obtain sufficient water for sea-going vessels to be able to come to it at all states of the tide, and such an extension of its frontage as to enable the large vessels now in use to be safely moored thereto. 2. For the eastern or local steamboat pier, the raising of the pier and its approaches well above high-water level; 3. The changing of the slip into one less steep—say 14 inch treads (shod with iron) and 6 inch risers, instead of 12 inch treads and 12 inch risers, as at present; and 4. The removal of the boulders at the end of the pier. I may add that the providing a floating pontoon on the slip of each pier would very much facilitate the landing and re-embarking of heavy stores, luggage, &c.

The expediency of providing for telegraphic communication between the Station and the main shore, I had the honour to refer to in my last annual report. I am most anxious again to bring the subject under consideration. The Montreal Telegraph Company have a line down the south shore of the St. Lawrence; the Dominion Telegraph Company a line down the north shore. With either of these communication might be established, or a line of telegraphic communication might be run from Quebec, by the Island of Orleans down through the chain of islands in the centre of the river, of which Grosse Isle is one. Such a line down to the Traverse would be of much service, I would submit, in signalling incoming vessels, and in announcing or preventing, by the obtaining of speedy aid, the wrecks that so frequently occur on and around these islands in mid stream.

In addition to the improvements to the piers, to the establishment of telegraphic communication, and to the building of quarters for the burnt out hospital staff, the following works are also necessary to place the Station in good working order, viz: the erection of walls or fences between the divisions, with a gate and watchman's house in each; the removal of the Protestant Chapel to the Central Division (or the erection of a new one there as has been done for the Roman Catholic Chapel); this is an important matter for the internal quarantine at the Station; the erection of a new shed in “Cholera Bay” in lieu of the fallen one there; the erection of a straw shed, and of a bake-house; and the repairing of existing hospitals, sheds, wash-houses, quarters, &c. I may add that I took advantage of this slack season to employ the staff in thoroughly whitewashing all the buildings, and in such minor works as were within our capacity, such as renewing the station flag-staff, working at and repairing roads and fences, &c., &c.

The last few years have been unusually healthy ones. In the circle of events it is only to be expected that a change will take place in the not far distant future. The English Medical Journals are already sounding the alarm of an approaching epidemic of small-pox. In the *Medical Times* and *Gazette* for the 21st of October last, it is stated that during the month of September 1,118 vessels of all descriptions had been visited by the health officers of the Port of London. Of this number the deck houses or forecastles of thirty-seven required cleansing; eight foul cargoes were found and orders given for their disinfection and immediate removal; and thirteen sick sailors were found afloat and were referred or sent to the hospital at Greenwich. In the number of the same medical paper for the 28th October, after some remarks on the rapid increase of small-pox, it is stated; “The statistics we have given, leave no room for doubting that we are in the beginning of a new epidemic of small-pox or, in other words, of one of those cyclical increases that occur with such irregular regularity to remind us how imperfectly we still employ the known means of preventing the recurrence and spread of the disease;” which means are isolation, and vaccination and re-vaccination.”

If the present war continue, and still more if it develope, as it threatens, into a war between Russia and Turkey, the sanitary outlook becomes still more alarming. In addition to small-pox and to typhus fever, the disease of camps and armies, a "*levée en masse*" of the Ottoman troops cannot fail to bring both cholera and the plague from the places where they are now active, to the seat of war. From thence their spread to the western ports of Europe, and so to this country, can hardly be any thing but a question of time. There is every reason, in my opinion, to fear that the summer after next, that of 1878, will witness the advent to our shores, as an epidemic, of one or more forms of pestilential disease.

Some of the works required at the Station will demand several months for their execution. Moreover, when an invasion of epidemic disease has actually reached the Station, it would add very much to the danger of spreading it, and to the difficulty of strict isolation, if *then* a number of architects, contractors and workmen were engaged to hastily put things in working order, or to be coming and going at the quarantine station.

For all these considerations I would most earnestly press upon your consideration the necessity of having a large item for Grosse Isle works included in the coming estimates. And of having every thing possible done during next season to place the quarantine station of Grosse Isle in the most perfect condition for the arresting and "stamping out" of any epidemic which may threaten to gain entrance into the country by the shipping coming up the St. Lawrence.

I have the honour to be, Sir,
Your obedient servant,

FREDERICK MONTIZAMBERT,
M.D. Univ. Edin., L.R.C.S.E., &c., &c., &c.,
Medical Superintendent.

To the Honourable
The Minister of Agriculture,
Ottawa.

QUARANTINE STATION, GROSSE-ISLE.—Statement of Expenditure, 1876.

		\$ cts.	\$ cts.
April 15	Balance pay-list of wintering party.....		336 78
" 30	April pay-list.....		486 56
May 31	Pay-list for May.....	890 55	
	Medicines, O. Potvin & Co.....	30 80	
	Stationery, M. Miller & Son.....	62 30	
	Steamboat service, Naz. Bernatchez.....	360 00	
	General supplies:—Dry goods, F. M. Déchéne.....	\$476 40	
	Groceries, H. A. Paré.....	58 14	
	do L. Bourget.....	55 45	
	Hardware, H. S. Scott & Co.....	53 08	
	Flour, Connolly & Co.....	33 60	
	Straw, F. Vézina.....	30 00	
	Meat, &c., Léon Arel.....	21 30	
		727 97	
	Contingencies, as per voucher.....	237 49	
June 30	Pay-list for June.....	890 59	2,309 11
	Printing, C. Darveau.....	\$1 50	
	Stationery, M. Miller & Son.....	2 50	
	Steamboat service, Naz. Bernatchez.....	4 00	
	General supplies:—Hardware, H. S. Scott & Co.....	\$331 88	
	Dry goods, F. M. Déchéne.....	112 25	
	Flour, Connolly & Co.....	32 40	
	Coal oil, F. O. Vallerand.....	23 45	
		499 98	
	Contingencies, as per voucher.....	35 62	
July 31	Pay-list for July.....	890 55	1,610 19
	Steamboat service, Naz. Bernatchez.....	225 00	
	Contingencies, as per voucher.....	1 82	
August 31	Pay-list for August.....	890 55	1,117 37
	Steamboat service, Naz. Bernatchez.....	180 00	
	Contingencies, as per voucher.....	11 13	
Sept. 30	Pay-list for September.....	890 55	1,081 68
	Steamboat service, Naz. Bernatchez.....	180 00	
	Contingencies, as per voucher.....	436 21	
Oct. 31	Pay-list for October.....	890 55	1,506 76
	Medicines, O. Potvin & Co.....	11 15	
	Stationery, M. Miller & Son.....	4 00	
	Steamboat service, Naz. Bernatchez.....	225 00	
	General supplies:—Hardware, H. S. Scott & Co.....	\$175 48	
	Flour, Connolly & Co.....	99 60	
	Coal oil, F. O. Vallerand.....	49 63	
	Dry goods, F. M. Déchéne.....	17 00	
	Vegetables, Léon Arel.....	3 60	
		345 31	
	Contingencies, as per voucher.....	8 98	
Nov. 30	Advance pay-list for wintering party.....		1,484 99
	Pay-list for November.....	901 66	651 00
	Printing, C. Darveau.....	5 00	
	Steamboat service, Naz. Bernatchez.....	225 00	
	General supplies:—Meat, Léon Arel.....	15 00	
	Contingencies, as per voucher.....	19 79	
			1,166 45
	Total.....		11,750 89

SYNOPSIS OF EXPENDITURE, Half Year, to 31st December, 1876.

	\$	cts.	\$	cts.
Pay of Officers.....	5,114	86		
General supplies.....	369	31		
Medicines and medical comforts.....	11	15		
Printing and stationery.....	9	09		
Steamboat service.....	1,035	00		
Contingencies.....	477	93		
			7,008	25

SYNOPSIS OF EXPENDITURE, Calendar Year, 1876.

	\$	cts.	\$	cts.
Pay of Officers.....	7,719	34		
General supplies.....	1,588	26		
Medicines and medical comforts.....	41	95		
Printing and stationery.....	75	30		
Steamboat service.....	1,575	00		
Contingencies.....	751	04		
			11,750	89

FRED. MONTIZAMBERT, M.D., Univ. Ediu.,
 L. R. C. S. E., &c., &c.,
Medical Superintendent.

No. 13.

ANNUAL REPORT, QUARANTINE STATION, PICTOU, N. S.

(W. E. COOKE, M. D.)
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QUARANTINE STATION,

PICTOU, N. S., 29th December, 1876.

SIR,—I have the honour to report respecting this Station, for the year ending 1876. I am thankful to be in a position to state that no cases of infectious or contagious disease have required my attention in this port, during the past year.

I have the honour to be, Sir,
Your obedient servant,

W. E. COOKE, M. D.
Inspecting Physician.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 14.

ANNUAL REPORT OF ST. JOHN, N.B., QUARANTINE STATION

(W. S. HARDING, M.R.C.S.)

QUARANTINE STATION,
ST. JOHN, N. B., December 28th, 1876.

SIR,—I have the honour to report respecting this Station for the year ending 31st December, 1876.

On the 25th of May, the ship "Equator" arrived here from Rotterdam, whence she sailed on the 27th of March. The day after leaving port one of the sailors was taken sick and in twelve days died. From accounts given by the captain, there seemed no doubt that fever was the cause of death. Another of the sailors, named Christian Anderson, taken down on the 9th of May, I found on board labouring under a bad type of typhus fever. I was not aware of any case of pure typhus having occurred in St. John for some years, and it seemed proper to use, if possible, even extra care to prevent the typhus infection from getting lodgement here. The ship was placed in quarantine, cleansed and fumigated and all articles of bedding and clothing subjected to disinfecting process. The sick man was removed to Partridge Island on the day of the ship's arrival, 25th May. He continued a long time in the low state he was in on arrival, and after some improvement and relapses, finally died on 5th July. No case of typhus has occurred in the city since the arrival of the ship.

The ship "David G. Fleming" 1,566 tons, David Esson, master, arrived here on 10th July from Liverpool, after a passage of 52 days. At date of sailing from Liverpool there were 27 persons on board all told, being the officers and crew; the crew were all black men. Of these last, four died of small-pox on the passage, and six others were on board under the disease on arrival of the ship.

It appears to me worth while to furnish, as part of my annual report, an account of this infected ship more in detail than is commonly presented, as thus, through an illustrative case, the working out of quarantine and its efficacy in warding off disease can be better understood than through the usual general statement. This is desirable, so as to have the support of public opinion when making provision for its wants. I adopt this method at present for the further reason of wishing to induce your Honour's compliance with a request which I believe will, if acted upon, facilitate the working out of the regulations, and of which a detailed statement may help to explain the advisability.

Part of the crew of this ship when she sailed from Liverpool occupied a deck house, and part the fore-castle between decks. In the fore-castle, ten days after sailing the first case of small-pox occurred, and in thirteen days another, both being fatal. At short intervals afterwards eight of those in the deck-house were taken down, and two died. The six others were those mentioned as under the disease at the time of the ship's arrival. The bedding and clothing of all who had died were removed to amidships between decks, and so kept during rest of passage. The deck-house continued to be occupied by the remainder of the crew—including the sick.

The danger from this arrival was through the existing cases and their bedding and clothing, and the bedding and clothing of all the others, all which, as well as the ship (owing to the men having occupied different parts, and the clothing had been distributed) should be considered as thoroughly infected.

As a first step in preventing extension of the disease to the city, the clothing and bedding of all the dead, which had been put between decks, were, in my presence, sunk from the ship as she lay two miles outside of the island.

The six cases were the day after arrival with all their belongings landed on the island, placed in a detached building, and means were taken to keep them isolated.

The portion of the crew remaining on board were set to the work of disinfecting the ship, and some particulars of such work may be mentioned. The between decks and fore-castle were whitewashed over the whole surface of sides and ceiling. The deck of this part was scraped with ship scrapers, and then washed with solution of sulphate of iron and carbolic acid. In order to give the proper treatment to the deck-house, the worst infected part, it was necessary to put all the men with their belongings elsewhere. To effect this a large tent was made on deck with sails. In the deck-house, the bottom boards of the bunks were removed and destroyed, then all parts of the interior above the floor, bunks included, were painted, and the floor treated as had been the deck between decks. This part was not again occupied by the men. The between decks, and deck-house were several times subjected to sulphur, and chlorine fumigations.

After all had been done for the ship itself, which included means employed in the cabin, &c., &c., the task remained of disinfecting the clothing of all the people—a work reserved for the island, as only there it could be effectually done. Accordingly after the cleansing of the ship had been completed to my satisfaction, which occupied ten days, all the men with their belongings were landed on the island, and the ship taken same day to the city by tug-boat. These men landed on 21st July, having their bedding and clothing properly disinfected, were discharged on 25th.

The six cases of the disease landed on the island on arrival of the ship, were discharged on 8th August. It is gratifying to be enabled to say that no small-pox appeared in the city after the discharge of vessel and crew.

The foregoing particulars, embracing but a small proportion of the whole details of the process of disinfecting an infected ship, may yet be sufficient to show that it can only be done by great precautions being taken, requiring a close surveillance on the part of the Medical Superintendent, *only to be given through his constant presence while the work is going on.* But in regard to the other duties of this officer, which require him so to examine such vessels on arrival as to enable him to judge what should be done under all the varying circumstances of different cases, each having its own peculiarities, is not now to be entered into, this being beside the aim stated as the reason for giving present details, which need only embrace part of his duties.

The suggestion I before mentioned as wishing to make, I now beg respectfully to submit to your Honour's attention. It is my opinion that it would be a great advantage to all the interests affected by the working of quarantine, if the house on the island provided by the Provincial Government some thirty years ago for the Medical Superintendent, and until recently available for him in the discharge of his duties, were again put into his possession. The effect, I respectfully submit, would be to shorten the period of detention of infected ships, and to afford greater security against the extension of disease.

Referring to the duties for Medical Superintendent to perform on the island, the regulations page 14 say "he shall superintend the cleansing, washing and purifying of all passengers and the unpacking and ventilating of their baggage, and when they are in a fit state to proceed, he shall, if need be, cause any part of it to be burned or otherwise destroyed."

He should, in fact, so closely superintend this work as to know respecting every article of clothing or bedding, whether it is or not really disinfected; one piece not being disinfected would nullify the whole proceeding. This section must be regarded as a cardinal feature of the regulations; and it must be admitted that the island is admirably adapted for the purposes it is used for, affording every facility for doing the things requiring to be done; ample space, both under cover and over its surface, large boilers for washing clothes, &c., &c.

During the time this kind of work may be in hand the *Medical Superintendent* should be all day, every day, on the Island, and at night too, so as, besides fully superintending and giving instruction in all the processes, to assist in guarding against the escape of people, either from ship or island, and other obvious reasons.

The possession of the house would serve other useful objects besides the chief one, which induces my present representation respecting it; one or two of which may be mentioned. (1) The stewardess might occupy it, and then (2) one of the rooms could be used for the safe keeping of the bedding and other stores belonging to the Department—at present there is no safe place for keeping them. Then as a provision for Medical Superintendent, one or two rooms could always be kept in readiness for him to occupy on arrival of any infected ship, otherwise the apartments could not be available to answer his purposes. The possession, if at all, must be *before* arrival, as afterwards no time could be afforded for people in present occupancy to move out, and rooms to be made ready. The Medical Superintendent has, from the moment of arrival of such vessel, to give his undivided attention to her, and could have no time then to negotiate about and get possession of the house.

Therefore to enable the Medical Superintendent to be all day, every day, and at night on the island, from time of arrival of an infected ship, as stated to be proper, he needs some place to stop in; at present there is no place. The consequence is, that a considerable part of his time, that might be employed in advancing the work of disinfection, in which the men need constant instruction, must be lost in going back and forth to and from the city; and not to mention risk, more or less as it may be, of conveying infection to the city. One of the consequences *certain to arise*, must be a longer detention of vessels when in quarantine. Then consider risk of men escaping from vessel or island, and other facts, either stated or made evident through the information, and the case respecting the house is thus respectfully submitted to your Honour's attention.

I doubt not his Honour the Minister of Marine, who at present has the house in question in use for his Department, upon having the matter explained to him, will cheerfully agree to restore it to the uses for which it was built, and has always until recently been employed, feeling assured that no one would desire more than himself to have everything arranged so as to cause the least possible delay to ships when in quarantine.

The stoop passing along the upper story of the chief hospital is now unsafe and being the only means of access to all the upper rooms, will require repairs or renewal. The lower stoop of same building also needs repairing.

All the building needs white-washing.

That surveillance over arrivals which is always necessary, has been duly given, and the other routine duties, including dead bodies brought from the "States" and elsewhere, to know that none of the deaths of such were from infectious disease, have been properly attended to.

I have the honour to be, Sir,

Your most obedient servant,

W. S. HARDING,
Medical Superintendent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 15.

ANNUAL REPORT OF TRAVELLING AGENT, SOUTH QUEBEC.

(MR. JOHN SUMNER.)

SOUTH QUEBEC, 18th November, 1876.

SIR,—I have the honour to submit my report as Travelling Immigration Agent^t for the summer season of 1876.

The immigrants who have come under my immediate charge number 5,466, and 1,800 cabin passengers, all contained in 37 steamships.

I have made during the season 28 trips from Quebec westward, and have travelled over the Grand Trunk Railway in seven months, 22,800 miles.

There were about 750 Mennonites and Icelanders included in the above numbers, the remainder of that class having gone westward in charge of another person.

I have carefully attended to the wants of all these people, looking after them by night as well as by day.

The Mennonites will be good, hardy settlers, and have money. The Icelanders are poor, but will doubtless be good and useful settlers in time. The English speaking people were steady and desirous of becoming good citizens in this country. Clerks and mechanics are now totally ignored. There have been a number of good servant girls during the season, who got employment at once. No deaths occurred amongst any while under my charge.

The Grand Trunk Railway Company have given very fair accommodation, and there is no real ground for complaint.

The public refreshment rooms are kept by the same parties as last year, and have given satisfaction. The Government one at the Tanneries is not as satisfactory as I could desire, and during the last four months has been seldom used; but I believe from the conversation had with the Assistant Immigration Agent at Montreal that to immigrants fed at the caterer's own hotel, satisfaction was given.

The system I have adopted of giving meat tickets at the request of Mr. Daley, and likewise those at the request of the Ontario Immigration Department, has a good effect.

I desire to express my thanks to all parties with whom I came in contact in my official capacity for their uniform kindness and courtesy.

Respectfully submitted.

I have the honour to be, Sir,
Your obedient servant.

JOHN SUMNER,
Travelling Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 16.

ANNUAL REPORT OF THE HALIFAX AGENT.

(W. N. WICKWIRE, M. D.)

GOVERNMENT IMMIGRATION OFFICE,
HALIFAX, 4th January, 1877.

SIR,—I have the honour to lay before you the following report for the year 1876

As last year, I am happy to be in a position to state that very little sickness requiring official attention has presented itself.

On the 1st of April the steamship "Austrian" arrived from Liverpool with a steerage passenger suffering from measles—the city authorities refusing to allow the case to be taken to the City Hospital, I removed it to the Quarantine Station, and there treated it till recovery took place.

On the 15th September the barque "Templar," bound from Montreal to Europe, arrived at this port, having lost on the 14th September one man from small-pox. The vessel was kept quarantined for the usual period, and no other case occurred.

On the 18th September the brigantine "Arctic," from Wellington for Cork, put into this port with one seaman suffering from a malignant type of fever. This man died the same evening, and was buried the next day at Lawlor's Island.

The usual precautions have been observed in reference to passenger steamers and other vessels coming from ports known to be infected.

Considering the large number of ships, and especially passenger steamers from foreign ports arriving during the year, we have been remarkably fortunate in having so little disease brought here, and can scarcely hope for a similar immunity during the present year.

The wharf at Lawlor's Island, about which I have spoken in several of my annual reports, was constructed during the last summer. The structure is good and substantial, and supplies a long felt want.

I have the honour to be, Sir,
Your obedient servant,

W. N. WICKWIRE, M. D.
Inspecting Physician.

No. 17.

STATEMENT ON EUROPEAN EMIGRATION TO CANADA, DURING THE YEAR 1876.

(RICHARD BERNS.)

ANTWERP, 31st December, 1876.

SIR,—In answer to your request of 11th inst., I have the honour to transmit you my statement on Emigration to Canada, and its operations within my own knowledge, during the year 1876.

Considering the question from a general point of view, I think it necessary to call to mind my report on the proceedings during the last year, the importance of which induces me to recur to it again this year, and to which it seems expedient to direct your attention.

The chief requirements which I pointed out in that Report were the following:—

“The want of a direct service between Antwerp and Canada in a double point of view, namely: To stimulate emigration and contribute to the extension of trade, chiefly the exportation of Canadian products;

“The importance of advertising in order that the public may be informed of the profits that immigrants find in Canada and the happy results obtained by those who settle in that country;

“Indisputable benefit resulting to Canada from the reduction of fare, in view of attracting European emigrants;

“Utility of the construction of the Trans-Canadian Railway to get European workmen belonging to all trades, who will contribute later to the erection of new manufacturing works and to the extension of those already existing.

“Urgency of providing commercial agencies with sample rooms, the agents answering all questions concerning the products of Canada.”

I shall, I think, be justified, without going through all these points again, for which I refer to my foregoing statements, in recalling the attention of the Canadian Government to such remarks as might throw some light on the subject of the accomplishment of its task and perhaps lead to some useful decisions.

Firstly, I allude briefly to the advantages of advertising. The results, which this means offers, are confirmed by Messrs. Allan Brothers & Co., Liverpool, who, on every opportunity, distributed hand-bills to stimulate emigration to Canada. Their great expenses for that purpose prove that they consider this means as a very efficient one, and I may further state that numerous experiments of it in all branches show every day the truth of my observation.

I further direct the attention of the Canadian Government to the main point of protection and care that must be given to immigrants. I know its great solicitude and watchfulness on this head, but as I have the honour to be entrusted with some share in the responsibility, I desire to show, indisputably, that its watchfulness and that of its agents in this respect must be ceaseless. The reception and placing of immigrants is one of the weightiest and most delicate tasks involved in the enterprise of the Canadian Government.

As I have already observed, save a small number of sailing vessels trading between Antwerp and Quebec or Montreal during the summer, there is no direct connexion between Canada and Continental Europe. On the contrary, all ports in the United States are connected by lines of steamers with our continent, while Canada solely deals with London and Liverpool. Every commercial transaction between Canada and Continental Europe must, therefore, go through the hands of English merchants. Hence it follows, that the extension of Canadian trade, which

tends chiefly towards Belgium and France, is stopped in this way. Similar considerations have led the Belgian Government to the allowance of subsidies to some lines of direct communication, and if the Canadian Government could follow the same plan, it would act not only very profitably in favour of the Canadian export trade, but also emigration would receive, from the direct relations which in this manner would be established, an impulse so much stronger, that your Government would find itself, by this circumstance, induced to stipulate for special conditions for the conveyance of emigrants to its territory. The latter would then be satisfied with reduced fares, and having only one passage to make without transhipments, they would lose much of the hesitation which I mentioned in my foregoing returns, and it would be much easier to obtain the emigration of whole families.

An object of no less utility than regular direct lines, in view of securing the extension of direct trade, would be the formation of Chambers of Commerce in all the great markets of Europe and especially in the sea ports. It is undeniable that Chambers of Commerce give very favourable results for the country and trade, — this is manifest every day. Canada, whose interests are nearly the same as those of Great Britain, could intrust the organization of these Chambers to the British Consuls; they would be chiefly composed of Canadians residing abroad, and of persons whose interests are connected with Canadian business. Exclusively representing trade concerns of and for Canada, they might exert a valuable influence on emigration, based upon the well founded trust which would be inspired by such an assembly formed of persons enjoying a well known respectability.

Emigration during the past year was generally not extensive, which has been mainly caused by the disadvantageous state of affairs in the United States and Canada, and by the financial crisis which declared itself in Europe. The number of emigrants, chiefly labourers, sent through my office to Canada in 1875-76 was 470; considering the little tendency for emigration since the spring of the year 1873, the causes of which I analysed in my report for that period, this number must be considered as favourable.

The direct lines of steamers from Antwerp to New York, which carried in 1874-1876 together about 15,000 persons to the United States, and the fares of which are very much below those from Antwerp to Canada, *via* Liverpool, give a formidable competition to immigration to Canada, chiefly as the journey to Montreal costs much more than the passage by direct steamers for New York. It confirms the remarks which I have constantly made, and sums up as follows;—It requires not only direct lines, but, therewith, fare—subsidies in behalf of the emigrants. Could the Government consent to extend to every class of emigrants, the subsidy of £1, which it allows to female servants, mainly for the conveyance of whole families, there is no doubt but that this would have a decided influence on emigration.

During the year 1876 European emigration through our port to Brazil has been very considerably extended. The Brazilian Government allows free passage and secures to immigrants great advantages on their arrival in Brazil. Owing to the progress of steam navigation between Antwerp and Brazil, this emigration becomes every day more extended.

The question of emigration having a very close connection with the trade of the countries, I think it right to mention that it is in the highest degree desirable that exportation of Canadian products should be organized for the Continent as far as possible. In reference to this point I find it useful to mention the state of several Canadian products in our market during the past year.

The importation lists give the following returns for woods:—

	1876	1875	1874	1873	1872	
Cedar.....	2,292	3,353	6,988	2,974	3,886	} Logs
Ebony.....	25	22	79	514	177	
Walnut.....	1,744	2,924	1,270	5,614	3,543	
Maple.....	15	.....	102	.....	33

The detailed tables show that of the 2,292 logs of cedar, 522 were imported from England, and 568 from New York and Philadelphia. Prices ranged from 10 to 15 francs per 50 kilometers.*

The 25 logs ebony were imported from England, and changed hands at from 30 to 40 francs per 100 kilometers.

In walnut, 277 logs were imported from New York and Philadelphia, and 1,467 from South Europe. Prices paid were from 9 to 11½ francs per 50 kilometers.

The 15 logs of maple were imported from Boston, *via* Havre, and the last quotation ranged at 10 francs per 50 kilometers.

Very large quantities of grain were imported during the past year from America, chiefly from the United States, California and Chili. Canada could be called to aid to a great extent in feeding Europe, and her agriculture and trade would find in this way important and growing benefit. Direct relations would stimulate trade, as I have mentioned, and emigration, by extending the agricultural wealth, should likewise contribute to the commercial prosperity of the country.

Canadian petroleum is, as such, totally unknown on the European continent; and yet what extensive resources Canada has to apply in this trade. During the past year the United States imported to us 651,103 barrels. Why is the name of Canada not once mentioned in this important branch of trade? Canadian petroleum actually, only exported by the United States ports, could, at the same expense, be sent to Halifax, N. S., whence it could be exported during all the year to the different ports of Europe. Transactions between both continents would become far more extended under every point of view.

When I consider rosins, a material of which Canada could export such large quantities, and which gives a number of 27,070 barrels imported at Antwerp from the United States in 1876, there, likewise, the name of Canada does not even appear in the Continental trades' reports.

I submit all these considerations to the judgment of the Canadian Government. It will find in them my devotedness to its colonization.

The Belgian Government has promulgated a severe law, regulating emigration through Belgian ports. According to the stipulations of this new law, all persons wishing to carry on emigration business have to be licensed by the Government, and deposit at the public exchequer a bail of from 20 to 40,000 francs.

I have the honour to call the very careful attention of the Canadian Government the points which I take the liberty to indicate in this statement, and I have the thorough conviction that their application would amply and forever reward Canada for any temporary sacrifices.

I remain, Sir, with the highest consideration,
Your most obedient servant,

RICHARD BERNS.
Dominion Immigration Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 18.

REPORT ON SPECIAL COLONISATION IN MANITOBA.

(C. J. WHELLAMS.)

OTTAWA, 31st October, 1876.

SIR,—I have the honour to inform you upon my arrival in Winnipeg, I found it impossible to obtain full information of the agricultural resources of Manitoba and the North-West, the lay of the country and nature of soil, by staying around Winnipeg, neither could I ascertain how immigrants must travel to reach the Free Grant Lands, without I myself personally undertook a similar journey by the same mode of conveyance and equipment.

As to the direction I should take, I consulted with Mr. Hespeler, the Immigrant Agent, and Mr. Codd, Dominion Government Land Agent, and was advised by those gentlemen to go to the Little Saskatchewan, a journey occupying to and fro, 15 days. Having procured a guide, a Red River cart, an ox, a tent, and all requisites necessary for camping, I left Winnipeg, Thursday, 14th September, passing *en route* through Headingley, White Horse Plains, Bay St. Paul, High Bluff, Portage La Prairie, Pine Creek, Squirrel Creek, traversing the main Indian trail a distance of 170 miles, where I left the trail and proceeded in a southwesterly direction until I reached the bank of the Little Saskatchewan; along the route and near the places I have mentioned I found good homesteads and farms. From Ring Lake to Rat Creek the country near the trail was bristling with sheaves of grain a distance of 60 miles, many being the first crop from the breaking of the prairie.

Every farmer with whom I came in contact was hopeful of the future, and all believed that the country had for some years seen the last of their dreaded enemy the grasshopper.

Grasshopper.

The grasshopper being the one great drawback to the advancement of the country, I took great pains to gain information from the oldest settlers, and obtain their opinions. I was fortunate enough in being able to consult with Mr. Ryan, M.P., Mr. McKenzie and Mr. Grant, at Rat Creek, Mr. McKinnon, at Squirrel Creek, Mr. Spence, Clerk to the Manitoba Legislative Council, gentlemen whose land and farms extend for miles, and who have suffered severely from the plague. I also consulted many smaller farmers, old residents and settlers in the country, and went within twelve miles of where the grasshopper hatched out. From the information I received, I am pleased to say it is doubtful whether that dreaded insect will make its appearance in numbers sufficient to do serious damage to crops for some years to come. The difference of time I found very conflicting amongst the oldest settlers, it being estimated from 10 to 30 years. Mr. McArthur, at the Little Saskatchewan, said they hatched out within 12 miles of his farm this year, that they passed over like a heavy thunder cloud, quite obliterating the sun during their flight; a great number alighted in a field of oats, and cleared it in a few hours, when they resumed their journey, taking a different direction to that in previous years.

Mr. McKenzie, of Rat Creek, who farms upwards of 1,500 acres, said I watched them the whole of one day passing over high in the air, I was astonished at the direction they took, going almost due southeast, whereas previous years their course of flight was northwesterly; he did not mind their returning every third year if he had the crops of two, as everything grew so large and prolific.

Mr. Grant said, we have no signs of grasshopper for next year, because they had not paired at all, and from his brother members of the Manitoba Agricultural Society he was informed none had been seen in the Province pairing; hitherto at this time of year they would be united and remain so for weeks together.

Mr. House, of White Horse Plains said, during their flight they took a different direction to what he had ever known them to do, many fell to the earth and died in a few hours; upon examination of the dead ones each wing had two small holes near the shoulder eaten through, while underneath were two small insects of a reddish colour about the size of the head of a pin.

Soil.

The extraordinary productive power of the soil is most remarkable, the surface soil bring a rich black loam to a depth of from one to four feet; as you near the Little Saskatchewan there is a very slight admixture of sand, very fine; the subsoil being for the most part clay and gravel.

The country from Long Lake to the banks of the river, a distance of 150 miles, contains many fine sections of rich fertile land interspersed with poplar groves, rolling treeless prairie, slopes, ridges and valleys, salines and other marshes, fresh water creeks and lake like ponds. Surrounding these ponds and in the marshes is a long heavy grass from four to eight feet high; in many places it can be tied over the back of a horse, and traders camping frequently lose sight of their cattle for hours together; and wherever the land is not suitable for growing cereals, it is excellent for pasture, the marshes producing upwards of four tons to the acre. Mr. Grant, at Rat Creek, gets hay enough for 30 head of cattle during the winter, without the least preparation, all that is required is the machinery to cut it, and labour to gather.

Lay of Country.

Near the Little Saskatchewan, the prairie of the slopes, valleys, ridges, and table land to the agriculturist is an ocean of wealth; acre after acre, mile after mile, so far as the eye can see, the landscape is beautifully waving, the rolls are like the billows of the mighty Atlantic so far as they sweep in a continuous wave for miles in one direction, and whatever nature has produced it has done so most luxuriantly; the colour and variety of wild flowers is so great that the prairie presented the appearance of a huge flower bed; wild rose trees from six to twelve inches high are so numerous that the resting place while camping on the prairie is on a bed of roses.

Wild Fruit.

Housekeepers can procure any quantity of strawberries, gooseberries, black currants, raspberries, red plums, blackberries, cranberries and crab apples, the woods being full of them.

Timber.

There is plenty for all purposes at the Riding Mountains, at the head of the Little Saskatchewan. There is a block of timber 60 miles long by 30 miles wide, consisting of spruce, oak, and poplar. The spruce averages three feet in diameter, grows to an immense height, making timber 100 feet long, which can be floated down to any part of the Little Saskatchewan, and if necessary to Fort Garry. Besides this there is nearly all along its banks sufficient timber for building purposes and fuel.

Coal.

has been found at a distance of 14 miles on the side of a ravine east and west, and it is believed to be easily obtainable, as the vein crops out near the surface.

Iron.

Magnetic iron is plentiful in the Riding Mountains, and as the country becomes settled it will be of immense value, as smelting works will spring up, and manufac-

ories of all kinds of machinery will give employment to thousands of mechanics, making the valley of the Little Saskatchewan the most prosperous in the country of the North-West.

Horses, Sheep and Cattle

can be raised at half the price they cost in the eastern part of Canada, the fine grasses of the prairie and meadows providing an almost inexhaustible supply of hay.

Cheese.

There are no cheese factories in Manitoba or the North-West. The want of them is so great, it cannot be long before the enterprising people of the Dominion build them. So vast an extent of meadow and prairie, with its rich grasses cannot be allowed much longer to become the prey of fire, which now does the work of cattle, the scythe, and the mowing machine. The day is not far distant when the cowbells will be heard along the hill side, and in the valleys; then nightly the milk cans will be carried to the factory and converted into cheese.

Butter.

The making of this is so good, its quality so pure, and taste so rich, that it becomes a specialty of the country. Mrs. Batchelor, who two years ago came from the United States with her husband and children, and settled on the banks of the Little Saskatchewan, gets weekly from four cows thirty pounds of butter, and supplies in addition milk to four calves and twenty persons.

Preparation of the Land.

The soil of the prairie is turned over by a plough drawn by oxen (the furrow being about 9 inches in depth) in the fall of the year, and in the spring the harrow is drawn over it. The present settlers take but little pains after sowing and planting; the seed is left to care for itself; no weeding, thinning, or hoeing; everything grows as it were heterogeneously together, and yet the growth is large and plentiful. Cabbages, 26 lbs.; cauliflowers, 8 to 12 inches diameter; Swedish turnips, 35 tons to the acre; radishes (horse), 6 lbs. each; parsnips from 1 to 3 feet long; celery, 4 inches in diameter; timothy, 3 feet high, sown this year; tobacco raised this year, four feet and a-half high, leaf 18 inches long, equal to that grown South or elsewhere; blood-red table beets, three feet long, six inches diameter; onions, red and brown port, 500 bushels to the acre, average weight of each onion three-quarters of a pound to two pounds; potatoes, 32 bushels to one of seed, average weight of each potato, from half a pound to three pounds. Grey stone turnips, white, Dutch, mangold wurtzel, carrots, long, table, and early horn; sugar beets, kohl rabi, beans, peas, vegetable, marrows, cucumbers, are, taken altogether, superior to any I have seen in England. Wheat averages thirty bushels to the acre. Weight of that grown on the Little Saskatchewan, 65 lbs to the bushel. Oats, 70 bushels to the acre, the straw five feet in length. Mr. McKinnon, of Squirrel Creek, late of Argyleshire, Scotland, has a crop of wheat this year that will produce 50 bushels to the acre. Mr. Grant, of Rat Creek, informed me that through having had more rain than usual, his spring wheat fell with the wet, and through his not having provided water courses over the land, the water remained longer than it otherwise would have done had provision been made to carry it off.

Pine Creek.

On the east side there are a few sections of beautiful farming land; among the bluffs of timber and along the slopes there is plenty of oak, sufficient to make waggons, reapers, mowers, thrashing machines and other articles not requiring more than nine to eleven feet of timber in length—in the woods there are acorns enough to feed thousands of hogs.

Hops.

The golden native hop grows very large, the clusters are thick and numerous, the vine running to a great height; if properly cultivated they would be second to none in the world. The strength, colour and weight of the hop is a sure proof of the richness of the soil.

Labour.

The demand for farm labourers during harvest was considerable; the work of harvesting was largely done by Indians. At Rat Creek there was an encampment of upwards of 20 wigwams of the Sioux tribe. The Indians, with their squaws, were nearly all employed by Mr. Mackenzie and Mr. Grant. The squaws I saw busy binding the sheaves of grain, which they did expeditiously. The knot for fastening the sheaves made by them was different to what is in general use in Ontario and the old country, and equally as binding. During my travels I saw numbers of Sioux Indians, with whom I held, through an interpreter, a conversation.

Wages.

Farm Labourers, \$25 monthly and found.

Domestic servants, \$10 to \$16 monthly and found.

Masons, bricklayers and plasterers, \$4 to \$6 per day.

Painters, \$3 per day.

Blacksmiths, \$2,50 per day.

Railroad navvies and common labourers, \$1.50 to \$2 per day.

In Winnipeg and the new settlements there is employment for a large number of mechanics of the building class.

Clothing,

is not excessively high; the ruling prices are the posts of the Hudson Bay Company and Messrs. Kew, Stobart & Co. These posts are stores fitted up similar to a general shop in an English country place. The Hudson Bay Company keep a general assortment; Messrs. Kew, Stobart & Co., are exclusively dry goods merchants.

Mens' suits from.....	\$8 00 to \$0 00
Childrens' suits from.....	2 50 " 0 00
Mens' corduroy trousers	2 25 " 0 00
Winceys per yard	0 12½ " 0 25
Prints per yard.....	0 8 " 0 16
Sheetings (72 inch wide) per yard.....	0 45 " 0 00
Grey cotton per yard	0 06½ " 0 25
Flannel, Saxony	0 35 " 0 75
Flannel, Welch... ..	0 30 " 1 00
Flannel shirtings	0 30 " 0 60
Blankets (average weight ten pounds) per pound...	0 60 " 0 65

Groceries and hardware, also wines and spirits of excellent qualities, can be obtained from the Hudson Bay Company's stores in Manitoba at most reasonable prices.

To the enterprising agriculturist of small means there is an opening in Manitoba and the North-West, superior to that, in my opinion, that can be obtained in any other part of the Dominion; and in order to satisfy such of the truth of this statement, I have collected specimens of the various products of the country, which I hope to be able to take to England and exhibit.

Samples of Manitoba and the North-West Produce grown this year and brought by me for exhibition in England.

Wheat grown by Mennonites.
 Oats grown by Mennonites.
 Wheat grown on Little Saskatchewan.
 Barley.
 Peas.
 Indian corn.
 Buckwheat.
 Early rose potatoes.
 Early any other kind potatoes.
 Swedish turnips.
 White Dutch turnips.
 Long red mangold wurtzel.
 Globe mangold wurtzel.
 Sugar beets.
 Long table and early horn carrots.
 Kohl rabi.
 Native preserved fruit.
 Strawberries and black currants, Little Saskatchewan.
 Broad beans.
 Any other kind of beans.
 Long blood table beets.
 Parsnips.
 Red and white port onions.
 Hops, wild, native, Little Saskatchewan.
 Soap, home made.
 Clover.
 Pemmican.
 Hungarian grass seed.
 Potatoes grown from the seed.
 Long and short prairie grass.
 Marble head cabbage.
 Red head cabbage.
 Two boxes of Soil, Manitoba and North-west.

I have the honour to be, Sir,
 Your obedient servant,

C. J. WHELLAMS.

The Honourable
 The Minister of Agriculture,
 Ottawa.

No. 19.

REPORT ON COLONISATION IN MANITOBA.

(J. W. DOWN.)

TORONTO, August 2nd, 1876.

SIR,—I have the honour to lay before you the following report, resulting from my travels, and from enquiries made in the Province of Manitoba.

The information contained therein is not gathered from mere hearsay, but from personal inspection and conversation with actual settlers from nearly all nations, from the Mennonite to the Indian, and I vouch for its correctness.

I left Sarnia, 20th June, by Beatty's steamer "Ontario," and arrived at Duluth on the 24th. Here I stopped until Monday morning, when I left by the Northern Pacific Railroad for Fisher's Landing, where I arrived on the 26th. I remained here waiting for the Red River boat until the following day, and arrived in Winnipeg on Thursday, June 29th. I at once called on Mr. William Hespeler, the Emigration Agent, who on the following day introduced me to Mr. Codd, the Dominion Land Agent, and Governor Morris. Both of these gentlemen treated me very kindly, and gave me much good advice and information, which proved of great assistance to me.

I made arrangements on that afternoon for a team to start on the Monday morning, to inspect the lands west of the Meridian, in Ranges, one, two, three, four and five,—Townships four, five and six, descriptions of which I give hereafter, to the best of my ability. Mr. Hespeler agreed to accompany me on this journey.

On Saturday, July 1st, I hired a conveyance, and drove a few miles out into the country on the Selkirk Road, and saw some old settlers who have this year sown largely of wheat, barley and oats; the crops looked splendid. From these old settlers I obtained a great deal of information concerning this province for years gone by. I enquired very minutely concerning the grasshoppers, and am happy to be able to say that all these old settlers seem not to fear them hereafter.

I find that this province has been free from them for a period of 30 years at one stretch, and these people seem to think that they are on the verge of one of these periods, and are satisfied that when the country gets more cultivated there will be no grasshoppers, which are the only things this province has to fear at present. I am told by some of these settlers that at one time California, and the State of Illinois, as well as Wisconsin, were invaded with grasshoppers as bad, or even worse, than Manitoba; but as these States got settled and the lands cultivated, the grasshoppers disappeared. Every person has great faith that cultivation will have the same effect in this great and delightful province; in fact settlers are so certain of this that they have this year strained every nerve and sown as largely as possible of all kinds of grain, and up to the present time nothing could look more promising than the crops in that province. I made every inquiry as to the price of oxen, cows, &c., and the cost of farming implements in general; also the cost of breaking up the prairie, how much could be broken or ploughed per day, and where it could be broken with one yoke of oxen, or more, the cost of lumber, &c, particulars of which I give hereafter. At night I returned to Winnipeg, well satisfied with the results of my day's enquiries.

On Monday morning, July 3rd, Mr. Hespeler and myself left Winnipeg, and crossing the Assiniboine River, drove up the west side of the Red River, as far as the Scratching River, where we drove out and visited the Mennonites settled there, and camped for the night. I found 29 families living in this small village. These people settle differently to other emigrants; they all live in villages, each village being

some three or four miles apart. When they first move in on to these lands, they build sod houses, in which they live for the first year. All seem to be united, and are as one family. They work very hard and economically; for instance they save a great deal of labour in fencing. They merely fence one main road through the village, together with a small yard to each house. One man herds all the cattle, horses &c., on the prairie by day; he calls at each house in the morning and takes the cattle away together on the prairies; at night he brings them back again and shuts them up in the yards until the following morning. Each village has its own herder. These Mennonites on the Scratching River moved in on these lands in September, 1874, without a house, or even a tent, nothing but the sky for their roof. They were fully eight miles from firewood or lumber. I find them now settled in two villages; each has a good frame house, well built, and some of them very large. They have large herds of cattle, oxen and horses, and this year seven hundred acres of wheat barley, oats and potatoes. I went over the land, and better looking crops I never saw in any country. They have also 225 acres, newly broken up for next year, and still keep breaking more. Each family has a splendid garden, very clean, and full of all kinds of vegetables. They have also a number of mowers, reapers, hay rakers and threshing machines. Of course these people had money with them when they moved in; but every bit of the work has been done by their own hands; not even a man was employed at either house or building in this settlement.

On the Mennonite Reserve east of the Red River, commonly called the Rat River Settlement, I find there are 380 families, who moved in during 1874-5, settled in 32 villages, each of which has a name, called, I presume, after the village they left in Southern Russia.

These people have a little over four thousand acres under crop, and a large quantity breaking and broken for next year.

Each has built a house, stable, &c., and there are two churches. They have made capital roads, and even built bridges.

I should have said that those on the Scratching River are building a bridge across it this summer.

On the Mennonite Reserve west of the Red River, called the Dufferin Settlement, we spent nearly two days. I found here 300 families settled in various villages a few miles apart. The first party of these moved in last September and some this spring. All are living at present in the sod houses; but each is building a good house either of lumber or hewn logs. They have also a capital frame built church. These people have 1,475 acres under crop, chiefly wheat and potatoes. A large quantity of it was only broken this spring, and the grain sown on the green sod; nevertheless the crops look well, especially the potatoes. The wheat I would consider likely to yield a good half crop, or say about 15 bushels per acre. These as well as the others have large herds of cattle, waggons, ploughs, harrows, and all kinds of farming implements; in fact, I think every family in all these settlements has either horses and wagon or oxen and wagon, and all kinds of implements for use.

I noticed large numbers moving in from Emerson to both Reserves.

These Mennonites are, without doubt, the best settlers that ever emigrated to the Province. No man could believe what these people have done in so short a time.

As I visited almost every family, and saw for myself, I can vouch for its correctness that they stand just as I have written.

They are settled on the open prairie land, many miles away from timber, very few nearer than eight or ten miles, and more, nearer twenty miles. I spoke to several of them on this point. My answer in every case, "We do not mind that; we have good land and can grow good crops." In fact all are quite satisfied, and appear to be the most happy set of people it has been my lot to meet. They are very kind and sociable, and will make good neighbours to those who settle next to them. Many of them already speak English, especially the children. The land on their Reserves is very good, and they have both lands for grain and hay, and plenty of good water by digging from four to twenty feet. In fact, whoever lives to see a few years roll by, will see these Mennonites a very wealthy and respectable race in that great Province.

In my three weeks steady travel over this Province, I have seen nothing as regards industry equal to the Mennonites. They are, and no mistake, a hive of busy bees, and a credit to any country.

I had almost forgotten to state that the Mennonites on the Rat River Reserve east of the Red River are building two windmills, in order to grind their own grain, &c. I heard it reported before I reached Manitoba that the Mennonites were leaving the Province and going over to the United States. I made particular enquiries as to the cause of this, and found that eight families had left the settlement on the Scratching River, and gone to the States of Nebraska and Kansas, and two families from the Reserve east of the Red River had friends in those States whom they wished to join; this was the sole cause of these families leaving Manitoba, and the above the sole cause of their leaving the Province.

I next went through Townships 4, 5, and 6, in ranges west of meridian 1 to 6, both inclusive. Township 4 in each range joins the Mennonite Reserve.

Townships 4, 5 and 6, in range 1, I find to be good land fit for agricultural purposes. No timber; all open prairie. Soil, clay loam. These townships are only a few miles from the Red River, where cordwood can be bought for \$2 per cord, delivered on the river bank.

Townships 4, 5 and 6, in range 2, I find capital hay land; the rest all open prairie; good, rich soil which will grow all kinds of grain or roots. No timber.

Township 4, range 3, consists of open prairie. A few streams wind their way through it.

Township 5, range 3. A deal of this township lies low; capital hay land. Hundreds of acres there would cut two tons per acre at the present moment. Horses and mowing machines could be worked over the greater part of it. The rest of the township is a level prairie; soil, a rich black loam. No timber.

Township 4, range 3. Good level prairie. Soil, a black loam; a little timber, chiefly oak. A few pools of water scattered about.

Township 4, range 4. All good open prairie. Not a better Township in the Province for agricultural purposes. No timber.

Township 5, range 4. Good land; open prairie. Some good hay lands on the north-east section. No timber.

Township 6, range 4. Splendid land. The Boyne River runs through part of it. Some good timber on its banks, consisting of oak, elm, basswood and poplar. A large quantity of this township is taken up and settled. There are some good farmers on the banks of the Boyne River, who have made large improvements.

Township 4, range 5, west, consists both of prairie and woodland. The eastern portion contains good land fit for settlement, but the other portion I would not recommend for agricultural purposes.

Township 5, range 5, west, good grazing and hay land, but not much of this township is well adapted for growing grain. Tobacco Creek runs through it. There is some good timber on its banks in the south-west portion.

Township 6, range 5. Some good land fit for grain growing, but not equal to the land in the other ranges. Good timber. These three last townships are partly taken up, and some few settlers are on them.

Good water is to be found on these townships by digging from four to thirty feet, but in the majority of cases in less than ten feet. Taking these townships through, there is not any better land to be found in one block in the known world, and I am doubtful if its equal.

I can recommend these townships to English settlers or to any person wishing good land. Timber is scarce, which is one great drawback; but I consider if a settler going on good land can get timber for fuel close enough to him to be able to draw one load or cord per day, that he is all right and has nothing to fear.

This would be the exact position of people settling on these townships, and I think it more to the advantage of the settler to be, say 15 miles from his wood, and be that much nearer market, the Red River, or the railroad. The Red River is navigable during the whole summer season, steamers going up and down every

day. I consider it almost equal to a railroad. The lands or open prairies situated a few miles from the woods are of a far better quality as a rule than those close to the woods.

The Mennonites on the adjoining townships are situated exactly the same; as regards wood they fear nothing; they have passed through one winter and are satisfied. This is a guarantee that the other settlers have nothing to fear in this respect.

I would here state that in travelling through the State of Minnesota, I met a gentleman whom I found to be a large farmer from the State of Iowa, who is farming extensively there on open prairie lands. In conversation with him, fuel came into question. He informed me that he had overcome all difficulty in that respect, by sowing broadcast in the spring the large gray sunflower. He cuts it in the fall of the year into lengths for the cooking stove. He says that when dry the stalks and heads, which are very large, (the latter being full of seeds), make a good fierce fire. He said that in any ordinary year, a quarter of an acre of land would produce fuel for a cooking stove for a year. As the land is so rich in Manitoba, the sunflower would grow an enormous size. If tried and found to answer, and I would strongly recommend an experiment, it would prove a great boon to the settlers.

The months of June and July are the best to break up these prairie lands, as the grass has then its growth, full of sap, and it will readily rot and decay.

One yoke of good oxen will break up an acre per day in June, but when the ground gets hard it requires two yoke, which will break one and a half acres per day. The first breaking should not be more than two inches deep, with a furrow from fourteen to sixteen inches wide. The second ploughing goes fully two inches deeper, bringing up some of the beautiful rich black soil.

One yoke of oxen or one span or pair of horses will work these lands easily enough after the first breaking. Nothing but potatoes or peas should be planted or sown on fresh broken land. The latter brings a fair crop sown or planted in this way. But wheat and other grain are very uncertain, and should as a rule not be depended upon or even tried on the green sod.

The prairie sod rots and decays very rapidly. Lands broken up in June, ploughed again say in September, worked with harrows and sown to wheat in the following spring, will ensure a good crop, and the land is really like a garden, and it is the fault of the owner if ever it gets dirty again. These lands worked there in any ordinary season would be as clean and free from weeds, and when the wheat stubble is ploughed again in the fall, in as good a state of cultivation as land to be found in any part of the world.

From the information I have obtained, and from what I have seen in other Provinces, I have come to the conclusion that the soil, climate, and other natural advantages are conducive to successful farming, and that a poor man can more easily make a living in Manitoba than in other parts of the Dominion. The prairie land abounds with prairie chickens, and in the spring and fall ducks and geese are found in immense numbers. At times large numbers of pigeons are to be found. In the forests are large numbers of different kinds of deer, including the moose and the elk. Rabbits by the hundreds. The Canadian partridge is also very numerous. Of the fur-bearing animals there is the fox, beaver, otter, mink, and muskrat, and a few stray black bears; buffalo is plentiful in the North-West. The large lakes abound with whitefish weighing from three to five pounds. The rivers and streams abound with all kinds of fish, so that Manitoba and the great North-West, to the Rocky Mountains, present superior attractions to the tourist and the sportsman.

A word to English tenant farmers and others who have any desire to immigrate and better their circumstances thereby, and that of their family, who have say at least from £150 to £200 at their command. I advise them to settle in the Province of Manitoba, where the land is good, the climate healthy, and the advantages offered unequalled in any colony or country.

To such men I say, pluck up your spirits and cross the Atlantic, and go to Manitoba. It is only 20 days journey from England, you will be still under the old flag, and you, sons of Britannia, may build up another and greater England in the Dominion of Canada.

Prices of Provisions, &c.

Prices of provisions, &c., at present in Winnipeg, and from information I have received they may be set down as a ruling price for the next year or so.

Flour, per barrel.....	\$ 6 00
Beef, per lb.....	0 15
Pork, per barrel.....	\$18 to 25 00
Butter, per lb.....	0 25
Eggs, per dozen.....	0 25
Peas, per bushel.....	1 00
Wheat ".....	1 50
Barley ".....	1 25
Oats ".....	1 00
Potatoes ".....	0 75
Lumber from \$22.00 to \$35.00 per thousand feet.	

Average Crops grown in Manitoba.

Wheat.....	35 bushels per acre.
Barley.....	40 " "
Oats.....	50 " "
Potatoes.....	200 " "
Peas.....	40 " "

The above prices will of course decline as the country gets settled and cultivated.

Price of Oxen, Cattle, &c.

Good oxen fit to break land.....	\$150 00
Good horses.....	300 00
Good mules.....	300 00
Good cows, from.....	30 to 35 00
Breaking Plough, from.....	25 to 30 00
Harrow, from.....	10 to 16 00
Waggon, from.....	80 to 85 00
One ox cart, from.....	15 to 20 00
One ox harness, from.....	7 to 9 00
Cooking stove with fixtures, from.....	25 to 40 00

Cost of House.

It is very difficult to get a fair estimate, as it would entirely depend on the kind of house built and the district. I think a good comfortable log-house may be built for \$200. Any family taking up land and settling in this province requires fully \$600 when he reaches Manitoba to enable him to get a fair start. I would not advise any one to emigrate to Manitoba with a less capital than the above, but with as much more as he may be able to get. Of course a house might be built for much less provided woods were near and the settler did all he could himself.

General Remarks.

No man should emigrate to this province without he intends to settle on land and work for himself, as there is really no employment in the province for agricultural labourers, except just during the harvest.

Navvies are the only men wanted in the province at present, their wages being \$1.50 per day.

The accommodation for immigrants on the route from Sarnia or Collingwood to Fort Garry, is inferior when compared with that of the Allan steamships. The steam boats on Lakes Huron and Superior, are not sufficiently commodious to accommodate more than 200 emigrants, and even then I question whether sleeping berths could be had for even this number.

From Duluth to the Red River accommodation is tolerably fair, but I would suggest that emigrants cannot be too careful on their run over the Northern Pacific route, which is infested by gangs of ruffians who live by plundering all those they may chance to get into their clutches. Glindon and Fisher's Landing these miscreants make their head quarters; the latter place is the station where emigrants go on board the Red River steam boats for Fort Garry. On the Red River boats there really is no accommodation whatever for emigrants, all have to stow themselves away as best they can amongst the freight, baggage, cordwood, &c., on the lower deck, and there is no way provided for cooking purposes; this is really too bad, and the emigrants complain very much on account of this.

I have seen the Mennonites actually shipped from Fisher's Landing on a barge already laden with railroad iron, and towed the whole way to Dufferin in this manner without any shelter whatever.

The time occupied from Fisher's Landing to Winnipeg Port Garry, is not generally less than 50 hours.

The boats on this portion of the route are much smaller than those on Lakes Huron and Superior, therefore when you take into consideration that the latter boats are very often over crowded, what must it be on the steamboats on the Red River.

During my stay in the Province of Manitoba, I fell in with a good number of persons from Quebec and Ontario, who were in quest of land for settlement purposes, many of them returned without having obtained the object of their visit.

In conversation with those Canadians, they complained of the exorbitant prices asked for horse hire to look up land, it being \$5 per diem for single horse with conveyance, and \$10 per diem for a double team, together with the expense of support of team and driver.

And, further, that a great portion of the best and choicest lands is in the hands of speculators, who will not settle on it themselves, and prevent others from doing so in consequence of the high prices asked by land sharks for sections of land, as the case may be; some 'tis true who were more persevering than the others, have remained, and have taken up lands from the Government.

I may state that in the city of Winnipeg there are many who live by speculation on lands, and a very large portion of the timber and other good lands of the Province of Manitoba has fallen into their hands; this in my humble opinion is very much to be regretted, in as much as it prevents the location of many good settlers.

The poor Half-breed Indians are too often the dupes of those land sharks, who purchase their land and also their land scrip from those poor creatures for a mere trifle.

This Half-breed scrip is dealt in in the city of Winnipeg, similar to green backs in broker's offices in large cities.

I have the honour to be, Sir,
Your obedient servant,

JOHN W. DOWN.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 20.

REPORT OF ICELANDIC IMMIGRATION AGENT.

(W. M. C. KRIEGER.)

REYKJAVIG, ICELAND,
March 25th, 1876.

SIR,—Although I presume, that my letters to the Agent General in due time will be forwarded to you, from which you will learn the details of my proceedings since I had the honour last to present myself before you, I wish in a few words to give you the summary thereof, as I trust that the results will gratify you. Having satisfied myself that in the south part of the island time would only be lost, as there was rather a feeling against than for emigration, I at once proceeded to the north, with the intention after having carefully passed through that portion of the country, to proceed east to the region of volcanoes, where I expected the largest number to go from. I spent, as my letters last fall perhaps already have informed you, October, November and December in the three countries of the north. My lists showed at that time 52 from Eyafirdir 123½ from Skagafirdir, and 37½ from Hunavatu County, that were positively decided to go, besides of course a number that was undecided. At that time, December 26th, I received the peremptory order from London to quit all work in the north and restrict myself to the south. Even though Mr. Jonassen came, there would have been plenty of work for both, which is clearly shown by the fact that he never reached the east coast of the island even. I do not mean to blame Mr. J. for this, I think he did as much as he could; but the time was too short. However, I left under-agents at work and chose a different way to the south, from the one I had gone in the fall, spoke with many hundreds of people, and arrived in Reykjavig after a most terrible and fatiguing journey of 22 days, on the 30th of January. I went then east along the southern shore, as soon as I could get horses, and returned here on the 8th of March, expecting the mail steamer on the 15th. That the Allans have not complied with my earnest request (often repeated) to deposit the guarantee money, makes it necessary for me to go to England and try to arrange matters, which will be easy now, I think, as I stand with 500 emigrants behind me. The sum total so far, but by no means the final for this year, is from the north and east 350, from the west and south 127. In these figures I count two children for one and those under one year are not taken in consideration at all. There are 723 souls, and before the steamer arrives here to carry them to Canada, I think the one thousand will be full.

I beg, Sir, that you will kindly believe that I have done my utmost; and that I have spared no pains, trouble or expense, that I thought might lead to success. I also trust that you will be convinced, that when I proceeded to the north, and worked there for three months with, I venture to think, a substantial effect, I did so, as I was under the impression that it was left to my discretion to go to whatever part of the island I thought best. I also flatter myself, that these people will be able to form a colony such as will satisfy the Department. But very few of them are poor, many of them carrying with them from \$1,000 to \$2,000. I am positive, that I am speaking in strict accordance with truth, when I say that the people now about to leave Iceland is only the *avant-garde* of a very heavy emigration. For while it is not the climate that compels them to seek other habitations, there are other and not less urgent reasons. The frequent failure of the hay-crops in some parts of the country, the absence of the cod, that lately has become an alarming evil; the volcanic action,

and the impossibility of ever acquiring even an independence, no matter how much energy and labour is employed, has disheartened the people, and ripened them completely for a *very heavy emigration*. But under such circumstances, I think you will admit, that the utmost care should be shown the pioneers, upon whose report almost every thing is dependent, and I beg you will excuse me when I ask, that any concession the Department may be able to give them, and any assistance within its power, may be shown these people. The Icelanders are by far more intelligent than I anticipated, and I can with a good conscience say, that they are not disinclined towards other countries, though perhaps not the United States; and I respectfully beg, that in Manitoba all the help that can be given them may be granted, or I am afraid that a movement now so fairly begun will end with a total discontinuance.

I have the honour to be, Sir,

Your obedient and humble servant,

WM. C. KRIEGER.

The Honourable
The Minister of Agriculture,
Ottawa, Canada.

No. 21.
REPORT OF OCEAN MAIL STEAMSHIP CLERK.

 (MR. CHAS. H. E. TILSTONE.)

 ST. "SARDINIAN,"
 PORTLAND, 19th January, 1877.

SIR,—I have the honour to report that during the past season I have distributed the various pamphlets and books received from the Department, and have afforded emigrants every information in my power.

The majority of emigrants who came under my notice were Mennonites *en route* to Manitoba.

I have the honour to be, Sir,
 Your most obedient servant,

CHAS. H. E. TILSTONE,
Marine Mail Officer.

The Honourable
 The Minister of Agriculture,
 Ottawa.

No. 22.

REPORT OF SPECIAL EMIGRATION LECTURER FOR GREAT BRITAIN.

(REV. LACHLIN TAYLOR, L.L.D.)

TORONTO, 22nd January, 1877.

SIR,—I have much pleasure in presenting a synopsis or condensed statement of my labours for nearly two years and a half, as special Lecturer on Immigration to the British Isles for the Dominion of Canada. In the first place I was particularly fortunate in getting leading gentlemen, such as Lord Mayors, Provosts, Bailies and Members of Parliament to preside at my meetings and occupy seats on the platform; this secured a notice in the leading newspapers amounting in many instances to a fair report of the lecture, which was a double benefit, first, as the means of reaching thousands who had not been present, and secondly, introducing the Lecture in many of the towns and cities visited subsequently, to make known the resources and advantages of our noble Dominion. In the south of England our chief difficulty arose from the lamentable ignorance of the working classes, who know as much about Canada or any other colony of Britain as they do about central Africa. A strong able bodied man, getting from eleven to thirteen shillings a week to support a family, without a garden, or an inch of ground to raise vegetables to supplement their scanty meal, would not be likely to have a large library, or pay even for a local newspaper, so that ordinarily their only means of information is through their religious teachers, many of whom are personally interested in preventing them from emigrating to any country in which their circumstances could be markedly improved. We found, however, some noble exceptions to this state of things, who when rising above their narrow and local prejudices gave us their influence, and bade us success in our mission. As a rule, the tenant farmer, in the parts of England to which I refer, gave us systematic and continued opposition, but whenever they came to hear, they took no exception to our statements or mode of presenting the advantages of Canada—and I am fully satisfied that when trade revives, and we have ordinary prosperity, many of them, especially from the North of England and Scotland, will emigrate, and find their circumstances greatly improved in their new home in Canada. The great bug-bear, even with men of intelligence and reading, is our climate, of whose cold *especially* they have the most extravagant and absurd views. I think, however, that my colleagues and myself helped to dispel in many cases their illusion, and pour some light on their day dreams, which is not always easy either through English fog or Scotch mist, which are both so dense at certain times that we required artificial light to see our food on the table at noon-day. These English notions can only be cured by a few years residence in Canada. In Scotland my meetings, as a rule, were very numerously attended. This was owing to two causes. In the first place I was solicited to give one of my lectures on the Holy Land, on the Sabbath, and as they were generally delivered in one of the largest churches, they were heard by thousands, and invariably proved a good introduction to the meeting on Canada held during the week. In the next place, wherever I visited in the Highlands, I found my vernacular the Gaelic, of great advantage. It is the most direct way to the heart of the Celt, whether he be found in Galway or Connemara in grand old Ireland, in the shadow of Snowdon in Wales, or the *glens of duthaich nam bearn—nanglearn as nan gaisgeach*. A friendly conversation after the lecture was eagerly sought for, and highly appreciated by the Highlanders. The great obstacle however, to emigration from those portions of the British Isles is

the poverty of the people, of which you have ample proof when you go among them, and see the miserable huts in which they live, and eke out a scanty subsistence. And as long as the Government of Australia and New Zealand give free passages to artizans and agricultural labourers, Canada must always be placed at a great disadvantage. And if our noble and liberal Government could grant the same boon to really deserving persons, whom the Agents, after a strict investigation could recommend, I am satisfied that no portion of the public money could be better spent than in assisting those who would make good and useful settlers in building up our great Dominion in the magnificent future that is before it. In the prosecution of my work as special lecturer, I invariably met with the cordial co-operation of the local Agents, or Commissioners of Districts throughout the Kingdom, and believe them to be doing a great and noble work, and I look back on the time spent in the service of the Department with unmingled pleasure; and although, my engagement with the Government has terminated, my work is not ended, for having made such extensive acquaintance in the fatherland, I expect to have the labour and privilege of correspondence with parties desiring to emigrate, as well as stretching out a friendly hand, and giving words of counsel and advice to some after they have landed on our shores, believing that in this way I can be promoting the best interests of my much loved and adopted country. I cannot close this brief summary without expressing my best thanks and lasting indebtedness to the Honourable Premier for his unvarying kindness, and his words of cheer and encouragement that met me at different points while carrying out the important object of my mission.

I have the honour to be, Sir,

Your obedient servant,

LACHLIN TAYLOR.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 23.

(Translation.)

ANNUAL REPORT OF A. ROWAND, M.D., AND C. DEGUISE, M.D., FOR 1876.

(INSPECTING PHYSICIANS PORT OF QUEBEC.)

QUEBEC, 4th December, 1876.

SIR,—We have the honour now to present to you our Annual Report for the year, 1876.

That year, like the two or three which preceded it, was remarkable for sanitary condition of the emigrants and of the crews of trans-Atlantic vessels.

From the monthly reports which we have submitted to you during the season, it will be easy to observe that no vessel coming from beyond the seas, had on board any contagious disease which necessitated its being sent back to Grosse Isle.

Such a cursory examination will shew how vexatious, in consequence of the loss of money and of time which it would entail upon the parties interested, would be the measure proposed by Dr. Montizambert, in his report of last year, to send back to Grosse Isle all vessels which had not previously reported themselves there. If that measure were put in force, it would appear the more offensive in view of the fact that existing sanitary conditions do not justify such severity.

During this last season only one suspected vessel, the schooner "Marie Louise," visited our port. That schooner had already been mentioned nearly a month previously in the newspapers, as having lost its captain by small-pox, and as having still several persons on board attacked by the same disease.

On the evening of the 1st November, two captains of coasting vessels came to inform us that the "Marie Louise," shewing a signal of distress, had been at anchor since the morning, beyond the mouth of the River St. Charles, and that the people on board were in want of provisions. Notwithstanding the lateness of the hour we went to her. She was in fact anchored far below the limits within which every vessel subject to inspection should cast anchor; this explains why her signal had not been noticed in the day-time. The person in charge of the vessel shewed us a certificate from the physician at Grosse Isle, permitting him to proceed to Quebec; we asked him what the disease was that detained the new captain at the quarantine station; he could not or would not inform us. However as his papers were regular, and the crew were in good health, and further, in view of their want of food, we did not think that we ought to refuse him the ordinary certificate.

It was not until after several inquiries that we ascertained, by a letter from Dr. Montizambert, which was communicated to us, that the schooner, having arrived at Grosse Isle on the 27th October, had left there on the 31st. Those few days were certainly insufficient to allow of the effectual disinfection of a vessel impregnated with the miasmata of a disease of so contagious a character: and had we known that the new captain was detained at Grosse Isle in consequence of the results of that same disease, we should certainly not have allowed the schooner free communication with the port. It appears to us that a vessel so situated should have been detained in quarantine at least eight or ten days, to give time for the necessary disinfection, washing with the solution of carbolic acid in water, and lime-washing. Too great precautions cannot be taken in connection with so terrible a disease.

There remain a few remarks which we have to make, to which we venture to direct your attention. Some ocean steamers, having on board it is true, but a small number of passengers, take upon themselves to land them without their having

submitted to examination by the Inspector. As contagious diseases may be disseminated among the population as well by a single passenger as by several, we consider that it is high time that a remedy for such an abuse should be provided. In our opinion the best means would be, that the certificate of the inspecting physicians should be required by the custom house officers in respect of every vessel which has conveyed one or more passengers; we also propose to report to the Government the first violation of the law of this description.

The second remark is in reference to the sheds at Lévis. It happens nearly every year that women are taken with the pains of labour or with hemorrhage on the arrival of the steamers, and that they cannot be removed to any place other than the sheds without greatly imperilling their lives. As there is room enough, we consider that a special apartment with two or three beds might be arranged for their reception. They are now obliged to pass eight or ten days lying upon the floor with no other covering than their own rags, often infested with vermin.

We cannot conclude without expressing our desire of how highly commendable is the hygienic and medical care bestowed upon the emigrants upon the several lines of steamers; and further, without expressing our thanks to the Emigration Agent, Mr. Stafford, and his employées, for the cordial assistance which they afford us in cases of need.

We have the honour to be, Sir,
Your obedient servant,

A. ROWAND, M. D.,
Inspecting Physician.

C. DEGUISE, M.D.
Quebec.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 24.

REPORT OF SPECIAL IMMIGRATION AGENT, DETROIT.

(R. WHITEFORD, M.D.)

DETROIT, 18th December, 1876.

SIR,—I have the honour to submit this Report of my mission as Special Agent for repatriation and Immigration.

In accordance with instructions received, and as the repatriation movement commenced two years ago is constantly increasing, I turned my attention more especially to directing a current of immigration into the new Province.

In order to acquire a better knowledge of Manitoba, which I was to describe in my lectures, I deemed it my duty, with the permission of the Department, to visit the North-West, in order to open relations with the Colonization Societies and leading inhabitants of the country, and also to see the resources of the new territory and ascertain what advantages it offers to immigrants.

I travelled the Province from north to south and from east to west, and satisfied myself that the emigrant could there in a short time create for himself a desirable position, for the fertility of the soil cannot be surpassed.

I established relations with J. E. Tétu, Esquire, Immigration Agent at Dufferin; William Hespeler, Esquire, Immigration Agent at Winnipeg and with the President and members of the Colonization Society at St. Boniface, and I am indebted to those gentlemen for information calculated to be useful in my work.

I visited this year again a large number of places in Michigan, Ohio and Illinois, which I had already visited, in order to speak this time more particularly of Manitoba.

I also distributed pamphlets and furnished information in relation to Red River in several Canadian towns.

I lectured in the more important centres in the course of my journeys.

In the northern part of Minnesota, and in Dakota, I remained some time, stopping in the parts which had been ravaged by the grasshopper, in order to diffuse a better knowledge of Manitoba, which was for some years afflicted with that scourge, but is now happily free from it.

I also gave pamphlets and explanations to persons desirous of emigrating, in some towns in the States of New York, Pennsylvania and Maryland.

I received applications for information from nearly all the western and southern States, and furnished my correspondents with all necessary information and sent, in addition, pamphlets on Manitoba for distribution. I have in this way distributed pamphlets in English, French and German in the following States:—Missouri, Kansas, Wisconsin, Minnesota, Texas, California and Oregon.

Already, as your Department has been informed, a current of emigration of all nationalities has begun to set in towards Manitoba from those parts of the United States and particularly from Wisconsin, Minnesota, Illinois and Michigan.

A good many emigrants will start in the spring from Michigan, Ohio and Wisconsin.

A reduction in fares would greatly facilitate my work.

I am striving to render my mission effective; I hold meetings and furnish details in relation to the country. I set forth the advantages which the Government offers to settlers, in the towns and villages I visit, and thus I do both in English and in French. I also distribute the printed matter furnished to me by the Department. I have in this way circulated information about Manitoba in English, in French and in German.

I purpose visiting, this winter, Missouri, Kansas and Arkansas, and I am in hopes that the emigration from the west will next summer be much larger than this year. The northwest is now beginning to be known, and if I may judge by the number of those who write to me stating that they desire to go there, the emigration will be important.

A French newspaper, "*Le Courier*," has just been established at Detroit, which will greatly help to make known the rich prairies of Canada.

The Colonization Society of Manitoba have sent to me for my lectures a circular entitled: *A nos compatriotes des Unis-Etats et du Canada. Emigrez à Manitoba*," which furnishes the fullest answers to the questions put to me at the meetings. This document will be of great use to me. I have also received from the offices of the "*Métis*," and "*Manitoba Free Press*," numerous documents essential to my work.

I am also powerfully assisted by a certain number of western journals, both English and French.

I pray you to believe, Sir, that I have always acted in conformity with the instructions of the Immigration Department, and that I have in no way neglected the matter of repatriation and of immigration to the other Provinces of the Dominion of Canada as well as Manitoba.

The distress which prevails in the United States must tend to expedite the return of Canadians to their country and induce many others to seek an improvement of their position by emigrating.

The whole respectfully submitted to your favourable consideration.

I have the honour to be, Sir,
Your obedient servant,

R. WHITEFORD.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 25.

(Translation.)

REPORT OF DUFFERIN IMMIGRATION AGENT.

(J. E. TÊTU.)

DUFFERIN, MANITOBA. 15th December, 1876.

SIR,—I have the honour to submit to you, my first Annual Report, on the operations of this Agency.

The tide of immigration commenced to flow, as usual on the opening of navigation.

As the Reports for each month show, the class of immigrants who have arrived here, has been exclusively agricultural. This may be explained by the entire absence of any sort of manufacture in the neighbourhood, and of any other kind of work requiring the handiwork of the day labourer, and also by the choice which the great extent of fine unoccupied land in this part of the Province offers to the immigrant. Having been informed of these facts, those who came here had almost all the necessary means of going to work on their arrival, and this they did with advantage, for in their first year they gathered in a crop, which, however light it may be, will permit of their extending their works in a more rapid manner next year.

The immigrants are made up of of Russian Mennonites, and Lower Canadians from the New England States. Some Upper Canadian immigrants were also passed through by this Agency, but in general these latter repaired to Winnipeg in order thence to direct their course to other parts of the country.

The Russian Mennonites had some means, but much less than those who preceded them; they are satisfied with the country, and many of their fellow countrymen may be expected to join them in the spring.

Separated from their native country for several years, the immigrants of Lower Canadian origin, by arduous and constant labour, had succeeded in gathering up savings, while employed in the manufacturing establishments of the New England States, and could give themselves up to agriculture on their arrival, entirely forsaking the mode of life they had been leading, in order to betake themselves with spirit to that of their infancy. Established on the reserves of the "*Colonization Society of Manitoba*," they have already a great extent of land under cultivation, several houses built, wells dug, &c. The dread which immigrants had of not finding water on the prairies, and which prevented a great number from establishing themselves there, exists no longer, for everywhere, at a depth of twenty feet, very excellent water in large quantities is to be found. This discovery will have the good effect of hastening the settlement of these lands.

The immigration movement from the United States is only at its inception, and at this time Manitoba having no longer anything to fear from the scourge of grasshoppers, it cannot fail to continue with success during succeeding years. I believe that I can trace in that quarter, for this Province the source of an immigration which Canada has long sought for in Europe.

Besides the richness of our soil, the reserves of land made in favour of the Russian Mennonites, of the Colonization Society of Manitoba, and the Icelanders, powerfully co-operate in the colonization of the country. In each of these cases, they are land entirely unoccupied, removed from the centres and devoid of all wood, which have been granted to the colonists of such or such an origin, who have entered the Province upon the suggestion of their fellow countrymen. The opening up of these lands would be very difficult, if not impossible, at least for the present, to the immigrant

single-handed, whereas, when acting in bodies, the matter becomes profitable to the immigrant and the country. It is easy to convince one's self of this fact by glancing at the immense extent of excellent lands open to colonization and still unoccupied, notwithstanding the fact that they are situate more in the neighbourhood of the centres than those which form part of the reserves. Further, the establishment of these reserves so far from being a burden on the Dominion or the Province, is one of the great means of colonization which we have, and if there is any burden to be borne, it is so solely by those who, without any remuneration, turn their attention to immigration of this nature.

The Dominion Government has rendered a great service to this Province by granting assistance and seed grain to its colonists so cruelly tried during past years. The Central Aid Committee at Winnipeg, has acquitted itself of its task with justice, and in a manner to give satisfaction to the public, often a difficult matter. The result of this generous support is well shown by the following table of this years harvest. These figures, the result of a compilation made by the "*Free Press*," of Winnipeg, and the "*Métis*," of St. Boniface, show the quantity of grain harvested, and the fertility of the soil of this Province.

Statement showing the yield of crops in Manitoba in 1876 :—

Wheat.....	480,000	bushels.
Barley.....	170,000	"
Oats.....	380,000	"
Peas.....	45,000	"
Various grains.....	3,000	"
Potatoes.....	460,000	"
Turnips and other roots.....	700,000	"

It has been estimated, further, that in thirty-four farms the average yield per acre for each grain has been :—

Wheat.....	32½	bushels.
Barley.....	42½	"
Oats.....	51	"
Peas.....	42	"
Potatoes.....	229	"
Turnips.....	662½	"

Let us add that the whole harvest has been one-tenth below the expectation of the farmers, on account of the dampness of the season, and because, in a great number of cases, the soil had been ploughed but once. All the grain harvested is of superior quality, and the wheat especially has excited the admiration of foreign farmers.

I have every reason to believe, that next year, we shall have from all the Provinces, and from the United States, an immense tide of immigration. Several of the Western States did not send to the market this year as great a quantity of grain as of late years. Doctor Whiteford, Immigration Agent, who has travelled much in those localities, believes that this falling off in agricultural produce is owing to the exhaustion of the soil, and, in certain localities, he says, they have entirely given up the cultivation of wheat.

I have maintained a large correspondence with persons from those States, and am convinced that a great number of farmers are only waiting for the spring in order to emigrate. The reduction in the wages of workmen in the manufactories is another reason which induces the emigrant to seek in the cultivation of a rich soil a remunerative return for his labour, and the statistics of our harvest, more than anything else, when once known to foreigners, are of a nature to influence emigration to Manitoba.

The erection of several grist mills in various parts of the Province has supplied a great want.

For the first time importations of cattle and horses took place from the West. An active and enterprising trader, set out from Montana in April last, and arrived in July, with 800 head of cattle and one hundred horses. Satisfied with his first experience, Mr. Demers will return next year with a far greater number of animals.

There has always been a number of emigrants at the *depôt* from the end of the month of May up to October. The distance of the localities towards which the immigrants direct their course, the absence of any house to be rented in the neighbourhood, and often the want of building material, obliges them to prolong their stay at the *depôt*; which, in every case can be done, owing to the great number of buildings belonging to this Agency.

I am happy to be able to say, that, next summer, several lumber yards will be opened in this vicinity.

The town of Emerson, on the east side of the Red River, and one mile and one half from here, is making rapid progress, and is the business centre of this part of the country.

I would add that the officers of Kittson's line, on the Red River, have always shown themselves very anxious to satisfy the immigrants as much as possible.

I regret having to point out a fact which greatly hinders our immigration. Certain parties, who pretend to perform the duties of agents, being stationed at Moorhead, Duluth and Fisher's Landing, succeeded, by false representations, in keeping back a good number of our immigrants. I know for certain that a party of 27 immigrants from the West, on their way to Manitoba, established themselves in the neighbourhood of the above mentioned places. More than ten analogous cases came to my personal knowledge last summer. In order to remove this obstacle, I would beg leave to suggest that the Agent here, being informed in good season of the arrival of immigrants, when coming in parties, should go to meet them at those various places; this is what I judged it best to do, and did it with success in May and July last. The immigrants have been subjected to strict regulations as to cleanliness, during their stay at the depot; hence only a single case of serious illness, requiring the services of a physician presented itself.

I have replied to eight hundred and eighty-one letters, and requests for information. There have been received into the sheds, during the last twelve months:—

Immigrants:—Russian Mennonites.....	1,349
“ French Canadian origin.....	324
“ Anglo Saxon origin.....	42
“ Icelanders.....	24
Total	1,739

Immigrants, came from Russia.....	1,349
“ “ from United States.....	348
“ “ from Canadian Provinces.....	42
Total.....	1,739

It is impossible for me to give the total number of immigrants who have entered the country this year. The only mode of procuring it, would be to furnish, in the spring season, the book-keeper of each passenger steamer on the Red River with blank forms, showing the number, origin, &c., of immigrants on each trip, and these blank forms so soon as they are filled up should be handed over to the Custom House Officer instructed to receive them, in order to forward them to me afterwards.

I have the honour to be, Sir,
Your obedient servant,

J. E. TËTU.

Canadian Immigration Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

No. 26.

REPORT OF CATTLE QUARANTINE.

(D. McEACHRAN.)

POINT LEVIS, (Que.) 31st December, 1876.

SIR,—In compliance with instructions conveyed in your letter of 23rd inst., I beg to submit the following report of the quarantine for stock at Point Levis, for the season now closed.

On receiving the appointment and the necessary instructions I proceeded to Quebec, on 25th April, and, after the necessary arrangements had been made, I had sheds and fences erected in the yard of Fort No. 3; engaged the services of Mr. Alexander Waddell, Veterinary Surgeon, as Assistant Inspector, also two servants to keep the quarantine and attend the ships to receive the stock.

Feeling convinced that to enable us to thoroughly carry out the objects aimed at by the Government in the establishment of the quarantine, I ordered that all stock included in the Order in Council, viz.:—Cattle, sheep and pigs were to be landed and sent to the quarantine and kept there for eight days, so as to enable us to thoroughly examine them, disinfect all articles accompanying them which might be media of conveying the virus of infectious diseases, such as bags, blankets, &c., a step which I may say, with one exception, met with the approval of the importers, and which, in several instances, apart from the protection afforded from contagious diseases, proved of great service as a resting place on their journey, and gave them time to recover from the effects of the voyage before proceeding on a long journey over land. During the season the following animals have passed through the quarantine:

Date.	Per Steamer.	Owner's Address.	Cattle.	Sheep.	Pigs.
May 15...	Circassian	F. W. Stone, Guelph, Ont.	7		
do 15...	do	Hon. M. H. Cochrane, Compton, P.Q.	4		
do 20...	Corinthian	Andrew Allan, Montreal	1		
June 2...	Lake Megantic	F. W. Stone, Guelph, Ont.		12	11
do 2...	do	John Snell & Sons, —, Ont.			4
do 13...	Polynesian	The Bow Park Importing Co., Brantford, Ont.	25	26	
do 21...	Phoenician	Lowman & Smith, Illinois, U.S.	8		
do 21...	do	J. S. Armstrong, Guelph, Ont.	7		
July 23...	Polynesian	The Bow Park Importing Co., Brantford, Ont.	10		
Aug. 6...	Circassian	Robert Miller, Pickering, Ont.		16	
do 6...	do	Birrel & Johnston, do		48	7
do 6...	do	The Bow Park Importing Co., Brantford, Ont.	14		
do 6...	do	J. C. Ross, Jarvis, P.O., Ont.		9	
do 6...	do	James Burrows, Markham, Ont.		17	5
do 6...	do	C. C. Parkes, Waukegan, Ill., U.S.		59	2
do 6...	do	Wm. Thompson, Pickering, Ont.		3	
do 6...	do	Wm. Miller, Clermont, P.O., Ont.		73	
do 20...	Moravian	John Little, Greenwood, P.O. Ont.		15	
do 20...	do	John Hope, do		17	
do 27...	Peruvian	J. Platt, Napanee, Ont.		3	
Sept. 3...	Polynesian	F. W. Stone, Guelph, Ont.	3		
do 3...	do	Samuel Eady, North Hatley, P.Q.		1	
do 4...	Austrian	Andrew Allan, Montreal	1		
do 11...	Texas	Ontario School of Agriculture, Guelph, Ont.	15	19	3
do 11...	do	W. F. Kay, Phillipsburg, P.Q.		1	
do 17...	Circassian	The Bow Park Co., Brantford, Ont.	7	7	
do 17...	do	John Hope, Malcom, Ont.	1		
do 17...	do	A. McCorkindale, Youngsville, Ont.	1		
Oct. 16...	Polynesian	John Hope, Markham, Ont.	5		
		Total	109	317	32

In addition to which three pigs were inspected on board "Lake Nipegon," S.S. and three sheep on the "Lake Megantic" which, by mistake, were carried past the quarantine to Montreal, making a total of 109 cattle, 320 sheep, and 35 pigs, 464 animals in all, and a large number of blankets, bags and halters, which were all subjected to disinfecting processes.

I am happy to be able to report that out of all these animals only one case of contagious "Lung Disease" Pleuro-pneumonia was met with (referred to and particulars given in my report for October) and being prevented from passing over the line of travel, the possibility of spreading the disease was prevented.

I beg also to report that the shipowners and agents were uniformly very obliging and aided the quarantine officers in the discharge of their duty. Valuable assistance was also given by the Collector of Customs and the officers of the Station. I beg also to refer to the courtesy of the Militia Department at Quebec, especially the commanding officer, Col. Strange, who gave us every assistance in his power.

I am happy to be able to report that Mr. Waddell, V. S., Assistant Inspector, and the two men under his charge performed their duty to my entire satisfaction, as I believe also to that of the owners and agents in charge of the stock, no complaint of any kind being reported to me; on the contrary, several complimentary letters have been received.

I wish to call attention to the suitability of the situation of the quarantine being high, yet convenient to the landing stage. Access to it is obtained by means of a road but little used, and few, if any, cattle are driven over it, except those going to and from the quarantine. It being a fort and under military regulations is a great advantage in enabling us to keep out visitors. The yard is dry, the supply of water abundant, good and convenient, and it can be used for the purpose without the least detriment to the fort, the earth works, casemates, &c., being carefully fenced off and the sheds and yards kept scrupulously clean. The sheds erected, with some alterations to the roof, will answer the purpose for a number of years; the roofs will require to be shingled, and perhaps the floors to be planked under the cattle, as in the spring and fall the ground is damp and uses up too much bedding, besides being injurious to the cattle. With these improvements, which will not be costly, the Department is in possession of quarantine premises equal to all requirements.

I have had all outside fences and moveable bars stored in one of the sheds, and the doors of all the sheds nailed up. The waggon, which was a cheap second-hand one, is nearly used up. It is stored in one of the woodsheds of the Fort. The shovels, forks, pails, &c., are stored in the sheds. The scales, medicines, &c., are removed to Mr. Waddell's at Quebec. The forage has all been used, only a small quantity being bought lately in preparation for closing. The horse and harness I have removed to Montreal.

If the Department will approve of it, I will probably find some one who would take the horse and winter him for the use of him. Otherwise, it will cost \$10 per month to have him well kept in the country.

On completing my arrangements, I waited on Colonel Strange and informed him that the quarantine was now closed, and that the Department intended to leave the sheds and fences, and asked if he had any suggestions to make so that I might leave everything in a satisfactory form to this Department. Colonel Strange expressed himself as fully satisfied with the arrangements, and promised to give orders to the soldier in charge to see that everything belonging to the quarantine was properly looked after during the winter.

The only expense to the Department, therefore, during the winter will be for keeping the horse, and owing to there being no demand for horses at present, I would recommend that he be wintered.

In accordance with a letter from the Secretary of the Department, of the 14th of August, I have paid \$50 to the telegraph operator at Father Point, and enclose voucher.

I have also paid up all bills and salaries, receipts for which are enclosed.

The books for entering the stock and forms of discharge and accounts for expenses of stock furnished by the quarantine, I have removed here, and will either keep them here or forward them to the Department as may be desired. I trust that the report may be satisfactory, and that the management of the quarantine has been such as to meet with the approval of His Honour the Minister of Agriculture and the public.

I have the honour to be, Sir,
Your obedient servant,

D. McEACHRAN.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 27.

REPORT OF CATTLE QUARANTINE ST. JOHN, NEW BRUNSWICK.

(ROLAND BUNTING,)

St. JOHN, N.B., 19th December, 1876.

Sir,—I have the honour to report that during the present year, there has not been any importation of cattle at this port of St. John, New Brunswick, that required any action under quarantine regulations.

I have the honour to be, Sir,
Your obedient servant,

ROLAND BUNTING,
Inspector of Quarantine.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 28.

REPORT OF GOVERNMENT IMMIGRATION AGENT IN HAMBURG.

(Mr. J. E. KLOTZ.)

HAMBURG, 2nd January, 1877.

SIR,—I beg herewith to present a report of my labours during the past year, 1876.

My labours during the past twelve months have been principally directed to the Mennonite emigration from Russia, and, considering the great difficulties I had to contend with, such being equally great as in former years, my labours have not been without success.

The returns of the number of Mennonite emigrants from South Russia, for the year 1876, are not equal to those of the previous year, caused partly by the bad crops in South Russia, but principally by the bad crops in Manitoba through the grass-hopper plague of said Province. Besides this fact being made known to the Mennonites of South Russia, which in itself made them rather dubious, designing parties pictured this plague in the blackest of colours, and tried to place Manitoba in the worst possible light, so as to prevent the intending Mennonite emigrants from seeking said Province as their future home; thus as late as the latter part of last winter I could hardly hope to secure more than two or three hundred of these people for Manitoba. But, through my incessant writing and refuting the base assertions of these designing parties, and giving proofs of my arguments, I was enabled to secure a considerably larger number than at first anticipated.

The number of Mennonite emigrants shipped during 1876 for Manitoba, and coming through my immediate agency, was 1,374 souls (225 families), 770 above 12 years of age, 505 between 1 and 12 years, and 99 infants, being, according to ocean passage paid, equal to 1022½ adults and 99 infants. Among these were 46 indigent families, to whom I, under instructions of Mr. Jacob Y. Shantz, of Berlin, Ontario, extended assistance in the ocean passage amounting in the aggregate to \$4,451.49, and 25 indigent families who were assisted by their wealthier brethren. These latter, belonged to the last large lot that arrived at Quebec (30th July), and were under the leadership of Mr. Jacob Peters, who, in 1873, visited Canada as one of the delegates from South Russia.

The amount of money exchanged by the above Mennonites under my supervision, and after the ocean fare had been paid, amounted to 215,000 rubles. Besides this amount I have lately received from South Russia, for transmission to Manitoba, 50,000 rubles, which I have exchanged for drafts on the Bank of Montreal and remitted the same according to instructions to the respective parties in Manitoba. This makes the total amount brought to Canada by the Mennonites during the year 1876, 265,000 rubles, or about \$170,000 gold.

The above mentioned emigrants, with the few exceptions that died during the journey, have safely arrived at their destination.

All told, within the last three years, and through my agency, 6,175 Mennonites have been shipped at this port for and are now settled in Manitoba. And the total amount of cash brought by these people to said Province amounts to considerably over six hundred thousand dollars.

Besides the so-called Mennonite emigration from Russia, a large German emigration from Eastern Russia, along the Volga, is to take place. The denominations of these people are Catholics, Lutherans and some Mennonites. This impending emigration is said to be of very great dimensions. Delegates from these sections were here at Hamburg in July last on their way to the Brazils. With great difficulty I had several interviews with said delegates, with the object of inducing them to pay a visit to Canada, which, after frequent interviews, they promised to do. The particulars of said interviews, and how a large share of said impending emigration may likely be secured to Canada, I have communicated to the Department at Ottawa, through the London Agency, under date 21st August, 1876.

German emigration is still decreasing. The cause of such may be principally attributed to the depressed state of trade, not only on this continent but in America and the whole mercantile world as well. At the same time the German Government is doing its utmost to decrease emigration, by a more rigorous enforcement of its emigration laws.

The following figures will show the number of emigrants shipped at Hamburg during eleven months of each year since 1871, inclusive :

From the 1st January to the 30th November,	1871,	40,974	souls.
“	“	“	1872, 72,823 “
“	“	“	1873, 67,965 “
“	“	“	1874, 42,630 “
“	“	“	1875, 30,905 “
“	“	“	1876, 27,906 “

The above figures (official) show a large decrease from year to year since 1872, and it is the impression of all those connected with the emigration business, that a still further decrease will be perceptible during the present year. By this it is evident that the chances of Canada getting German emigrants are also becoming less. By far the greater majority that leave this country go to the United States of North America, the remaining part seek their homes in Australia, New Zealand, Brazil and other South American States, and African colonies respectively; Canada, according to the statistics of the Hamburg Emigration Bureau, receiving a smaller quota of German emigrants than any of the above countries. The respective Governments of most of the above countries do a great deal in assisting the emigrant thereto by a reduced rate of passage, and the fact is that these countries attract thereby a great many emigrants from Germany and Austria and from other parts of the continent. It is quite evident that the great mass of the intending emigrants that have no particular destination will emigrate to that country which they can reach with the least expense. Only by the large grants made by the Brazilian Government, towards reducing the fare across for the emigrant, was it enabled to attract the many thousands of Germans that have settled there within the last few years, and such also holds good of Australia. Canada cannot therefore reasonably expect any large number of German emigrants, unless she gives a liberal assistance to the desirable class of such emigrants, by way of a reduced fare to Quebec. By a reduced fare to Quebec not only many of those now seeking their homes in the far-off colonies, but also many of those emigrating to the United States of North America might be induced to select Canada as their future home. The promise of “Free Grants” is no inducement to the intending German emigrant to emigrate to Canada, such “Free Grants” will only assist to keep the emigrant in the country. Other means must therefore be adopted to bring the emigrant to our shores. I would therefore beg to suggest that an assistance similar to that granted by the Canadian Government to the British emigrant be also granted to the German.

The Bohemian pamphlet, which I compiled in the German language and afterwards had translated, was published last February and extensively distributed in Bohemia, and called forth many enquiries concerning Canada from intending emigrants of that country; but not being in a position to compete favourably with other countries, as to rates of passage, I could secure but very few from it.

During the months of June and July last about 300 strong and healthy-looking

agriculturists (mostly families) from Bohemia arrived here at Hamburg without any particular destination. Many were almost penniless, the others, with the exception of a few with capital, had barely sufficient means to carry them across the ocean. One of the emigration officials called upon me to inquire whether I could, on behalf of the Canadian Government, assist these people to Canada, but not being in a position to grant "Assisted Passage Warrants" I had to answer in the negative. Those that could scrape up sufficient means were shipped to New York; some that had just enough to take them to England emigrated thither, and the remainder were sent by the authorities back to their former respective homes. The aggregate amount of money this lot had between themselves, irrespective of the capital a few of the wealthier had with them, together with a liberal Government assistance, would have taken them all to Quebec. Had I at the time been in a position to grant "Assisted Passage Warrants," I am certain that the whole lot would have been secured for Canada. Similar cases occur during the emigration season where quite a number might be secured for Canada at this port, had I the authority to grant "Assisted Passage Warrants" to the desirable emigrant.

By the foregoing, as also by frequent previous correspondence on the subject of assisted passage, it is evident that to secure a share of the German emigrants, assistance, in the shape of a reduced fare to Quebec, must be given.

As to next spring's emigration from South Russia to Canada, I may say that I am in constant and active correspondence with the Mennonites of said section, and hope to show good returns again this coming season, although at present it is difficult to say what the prospects may be.

I have sent to the different Mennonite colonies of South Russia an account of the last Manitoba crops, and that such was favourably received, subsequent letters from there show.

In conclusion, I would again beg to suggest the great desirability of an assistance similar to that granted to the British emigrant being also granted to the desirable German emigrant, and that such an assistance be given in the shape of an "Assisted Passage Warrant" by which the fare to Quebec will be reduced; such assistance being most essential to promote German emigration to Canada.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your most obedient servant,

JACOB E. KLOTZ.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 29.

REPORT ON ICELANDIC COLONY.

(JOHN TAYLOR, AGENT.)

GIMLI, NEW ICELAND,
KEEWATIN, 1st January, 1877.

To the Minister of Agriculture,
Ottawa.

SIR,—I have the honour to submit the following report of the Icelandic Agency, for the year ending 31st December, 1876.

At the beginning of the year 1876, the Icelandic Colony was suffering from want of suitable provisions, but the appropriation made in February by the Department, relieved the distress and enabled the settlers to take food sufficient for their support during their more protracted stay at their distant farms or homesteads, ten to twenty miles from this village. As soon as the men had made some clearings in the woods, and put up their log houses, they returned for their families. During the months of March and April most of the families moved away from Gimli to their new houses, with which they were well pleased.

A school for teaching the children the English language had been very successful and popular through the winter. It was closed in consequence of the people going away to farm.

At my request the Icelanders elected, by regular voting, five persons to form a Council for the management of their affairs, and for regulating, generally, all matters among them. Applications for land were recorded until regular surveys could be made, and a statement made out showing what food and seed was required. The Chairman of this Council received the appointment of Justice of the Peace, jointly with the Agent. No cases have yet been brought before them.

The fishing in the winter through the ice did not repay the time and the suffering from exposure to the severe frosts. On the 23rd April, however, the fish were more plentiful, and a great number were taken until the 8th May, when the ice became unsafe. On the 22nd May the ice disappeared, and the fishing was good for some time after. As other food was scarce, this abundant supply of good fresh fish was a great help to the people. Almost every family also saved one or two hundred for themselves. They were not saleable at Winnipeg. The best fishing stations were at Sandy Bar and Drunken River. The pike or jack-fish was the most plentiful, and the people prefer them to cod-fish. Very few fish were taken in the summer, but as the water became cool the fish returned to the shores, and had not the stormy weather prevented it, a larger number might have been taken. As it was, they saved, generally, from one to two hundred in each family, besides those used by them from day to day. Not many whitefish were taken this fall.

The sanitary condition of the Colony had been good, until, in March, the scurvy made its appearance. Sickly persons and women with young children were the chief sufferers. This disease was, no doubt, caused by the want of the usual milk diet to which the Icelanders, as a pastoral people, were accustomed, and which they were deprived of for nearly two years. The scurvy greatly increased in April and May. No recovery took place until some cows were brought down here in June, after which it quickly disappeared.

The fall of snow having been unusually great in the winter of 1875-76, with continuous frost (as low as 42° below zero on the 20th January, and 45° to 50° below in the first four days of February,) it accumulated to the depth of three feet in the woods, the average depth of past years being only one foot. The first thaw was on the 22nd March. The first rainy day was the 19th April, when ducks and rabbits became very plentiful. The snow water remained on the land, it being too flat naturally to drain itself. On the 21st April there were two or three inches of water on the surface, which was slowly absorbed by the dry soil, as the frost left it. The ice was from three to four feet in thickness on the Lake, and remained safe until the 8th May, not leaving us until 23rd May. The surface of the land had become very dry and easily ignited. Fires occurred from the burning of brush heaps in clearing the land. Two houses were burned, and boats and other property were saved with much difficulty. Very hot weather was experienced in May, the mercury being often between 80° and 95° in the shade.

The excessively hot weather was followed by a succession of furious storms of wind and rain which set in from the north on 30th May, and continued with one or two days intermission until the middle of June. The summer months were very wet also; the waters on the Lake rose to an unusual height, and were driven by the fierce winds from the north over all the hay lands, not only in the Icelandic reserve, but in the Red River country also. The fall weather was stormy, but generally dry. Furious gales prevailed from the north, and October set in very cold. On the 5th a snow storm set in and eight inches fell. All the creeks were frozen over, but opened out again. The Lake was frozen over November 13th, and the frost became more severe until, in December, the mercury in the thermometer became useless on the 8th, the temperature being then and on the 15th and 16th, from 45 to 50 degrees below zero. Sufficient snow for sleighing has been on the ground since the 17th November, and our new road through the woods has been much travelled on since that date.

In agricultural operations I would state that two or three acres of land have been on an average cleared for each family. Of the wheat and peas that were sown, very little was saved, the heavy rains having generally destroyed them. The potatoes and turnips also suffered greatly, but a half crop was obtained on some farms, while many about Gimli were quite spoiled. The hay is not a half crop, owing to the flooding of the hay lands.

The newly arrived immigrants were taken from Winnipeg in two large parties on the 14th and 19th August. One hundred and seven (107) small punts or row boats, and seven flat boats were provided for them, together with two military boats loaned to them by the Department of Militia. Many other punts and five more flat boats formed a part of this novel fleet which was most successfully taken to its destination, fulfilling completely all that had been hoped, and much more than had been expected of it. One of the unwieldy flat boats was taken about 120 miles by river and by lake, and afterwards made to do service in ferrying over their cows to the Big Island. These immigrants have generally settled in the six broken townships next to the Lake, 18 to 23 inclusive, and on Big Island. Some have preferred to remain in Gimli until the spring, when they will remove to their farms.

A Departmental telegram of 23rd August, required me to meet Mr. Beatty in Winnipeg to arrange with him for the construction of the Icelandic road, with which I complied, having previously travelled round the coast of our Reserve, including Big Island, and directed the immigrants to the most eligible localities.

Our letter of 18th September, announced the progress of that work. The road from Gimli to connect with the provincial roads is completed and the accounts will be sent in shortly. Also the road north towards Icelandic River is progressing rapidly, and will be completed before the end of the month, if not hindered by unforeseen causes.

On 11th September, according to said instructions, I forwarded estimates for supplies for six months for the newly arrived Icelanders. By your Departmental telegram of 23rd September, I was authorized to purchase the same, the amount not to exceed \$18,200. Mr. Hespeler was instructed to act jointly with me. Having

accomplished this, as far as practicable, I left Winnipeg for the seventh time this season, and received the goods as they arrived, the last schooner load having been landed at Icelanders' River at the end of October.

Buildings have been erected here and at Icelanders' River and Sandy Bar, for the safe keeping of the supplies.

In the month of September a disease began to show itself at Icelanders' River, which was said to have been caused by the crowding of the Icelanders while on their passage in the steamer from Collingwood, Ont., to Duluth, U. S. a full statement of which was handed to me by Mr. Halldor Bri ur, the agent in charge of the party, and forwarded by me to the Department in my letter of 13th September. On 22nd September I communicated to the Department the fact that a boy, who had been in the Quebec hospital with small-pox, had been sent here, and as I had failed in obtaining good vaccine matter, I asked for a supply of the same for the use of the colony. In October several persons had eruptions on them, but it was not regarded as serious until the Indians began to die with it. As the Icelandic doctors, who had themselves suffered with it, strongly insisted that it was not small-pox, I did not think it necessary to incur the serious expense for regular medical aid until the 13th November. About the 20th the disease suddenly spread far and near, and so increased in violence that when medical aid did reach us from Manitoba it was very evident that we were in the midst of that horrible disease the small-pox.

The Medical Report, dated the 27th November, was sent at once to Lieut. Governor Morris, and a copy of the same to the Department. The newly erected storehouse was converted into an hospital and every measure of precaution adopted to prevent the disease from spreading to the Province. Nearly five hundred cases have occurred, of which over one hundred have proved fatal, seventeen of the latter being Indians. The disease is considered to be diminishing, having nearly run its course. There are, however, families in the country and at Big Island who have not yet been attacked. Regular statistics will be forwarded as early as practicable.

Our supplies of provisions have been generally distributed among the people. Many necessitous cases have received temporary relief, and in view of the depressing effects of this epidemic, I distributed two pounds of fresh beef to each adult in the colony for their Christmas dinner, confidently expecting that you will approve of a measure so greatly needed at this trying season.

In conclusion, I would state that the prevalence of so severe a disease, and the consequent establishment of a very rigid quarantine, has greatly disorganized everything here, although there has not been a panic in the colony. Much distress is experienced by the rumored stoppage of Icelandic letters. Many of the people having sold their property in Iceland, require their money, which was to be sent to them according to instructions they gave from this place. If they cannot send the necessary instructions now, there will be no funds for them to buy their cattle or sheep with in the spring. Throughout the whole colony the people are naturally anxious now more than ever, to write to their friends at home to tell of their safety, or to report the deaths.

Many plans were devised to enable people to help themselves, which cannot now be executed. All the knitting which was to supply the Winnipeg market, and from which the poor women expected so much gain, has been discontinued. Many of the first settlers are in great straits already, and are asking me what they are now to do since they can neither get work here (there being more on the road already than can be sheltered and looked after) and are not permitted to leave the colony to seek it elsewhere. The road being near completion, a number will be deprived of the very great advantages which they have hitherto been obtaining from it.

Another great difficulty which it is most advisable to settle at once, is the regular entry of their homesteads. As no bonds can be taken for the loan until the surveys are completed, and some method authorised for the entries to be made, it is necessary to furnish me with some instructions as soon as possible, and also to have the survey of Big Island completed.

Other measures of relief must of necessity be speedily adopted for those suffering

under the disadvantages above referred to, by which they may be assisted through the season of quarantine. The only methods I can suggest, are providing some employment for the people in which they can engage with advantage to the colony, as well as to themselves. Cutting cord wood for next summer might occupy most of the people here. Building of boats, which many understand, would give employment to skilled labour.

The Icelanders are exceedingly anxious to construct a vessel suited for the navigation of the Lake and rivers. If assisted, they will strain every nerve to accomplish this. A small but very stout craft of twenty tons burden, to be fitted as a tug boat on these waters, would be of nearly as equal value to them in summer, as the road is in winter. They are anxious to have their schoolhouses, and are endeavoring to get a printing press among themselves for the good of the colony. Something like industrial farms would help those who have become widows and orphans, within the past month or two. A larger quantity of provisions is now absolutely necessary, and it is far better for the people to be fully employed in earning it, than to receive it as a loan or gratuity. A poor widow appealed to me very lately, and said, finally, "If you do not give me some work to do I shall go mad."

A supplementary report is being prepared, and will be forwarded shortly, showing the number of cattle in the colony, and the additional number of both cattle and sheep which it is considered advisable to supply to the colony in the spring.

All which is most respectfully submitted.

JOHN TAYLOR,

Icelandic Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

REPORT ON SMALL POX AT GIMLI

(JOHN TAYLOR.)

GIMLI, 27th November, 1876.

SIR,—I have the honor to enclose a copy of the Medical Report just handed to me, by which you will find that the small-pox has spread through the Icelandic colony generally. It has seized on several of the labourers on the road who have communicated it to the different houses where they have slept on their journey home. In this way it has extended south to within six miles of Manitoba, or twenty miles from Netley Creek, where the quarantine station is proposed to be made.

I have to state that the vaccine lymph, which I obtained from Philadelphia, through a medical practitioner of Winnipeg, Dr. Baldwin, has proved useless. Also, that as the disease was not more serious than ordinary chicken pox, it was not considered to be anything worse, and the Icelanders not having been exposed during their journey to any danger of infection, I did not consider it necessary to have medical advice sooner. On the 13th November I wrote for the nearest medical man, and the sudden spread of the disease has been subsequently. In fact, the greatest part of the now numerous cases, showed themselves only two days before his somewhat delayed visit.

I have enclosed the Report to His Excellency the Lieut.-Governor, and efficient measures will be adopted to keep the disease from being taken south. The deaths thus far have been chiefly of children; those of adults are chiefly caused by exposure, as the Icelanders generally are not much alarmed about it.

Mr. S. Jonassen having been altogether at Icelanders' River since his return here, and having been ill of this disease, I have not been able to avail myself of his assistance here as yet, but as soon as advisable he will come south to help me.

I have the honour to be, Sir,

Your obedient servant,

JOHN TAYLOR,

Icelandic Agent.

The Honourable,
The Minister of Agriculture,
Ottawa.

REPORT OF DOCTORS YOUNG AND LYNCH.

GIMLI, 28th November, 1876.

SIR,—On the 18th November, on receipt of your letter of the 13th November, I started for Gimli.

I arrived at Gimli on the 21st November, and proceeded to investigate the epidemic prevalent here.

Dr. Lynch arrived a few hours later, and together we visited a number of the infected houses, when we had no difficulty in pronouncing the disease small-pox.

We found about three-fourths of those infected had been attacked within the last ten days. Only three persons bore the characteristic marks of having passed through the disease.

We have visited one hundred and ten cases in various stages.

There have been twenty deaths so far, in this District, only three of whom were adults.

It was undoubtedly a mild form of the disease on its first appearance, but owing to the depressing effects of over-crowding, dirt, want of ventilation, and the children under five years of age never having been vaccinated, it is becoming much more virulent in its character—indeed some of the cases are now nearly as bad as they could possibly be.

We are fully convinced that the evident mildness of the disease among the adult population is due entirely to the repeated vaccinations to which they have been subjected in Iceland.

We find a very marked improvement in the houses outside of Gimli, and the inmates, as a consequence, much better able to withstand the ravages of the epidemic.

Dr. Lynch has just returned from Icelandic River, where he found the disease had originated with a man who arrived there in the fall, he being the first to contract the disease, probably from some infected clothing which he used after arrival.

That sixteen Icelanders and fifteen Indians have already died.

That there is great danger of its spreading across the Lake, on account of a number of the Indians having fled from Sandy Bar on the appearance of the disease.

That there is every reason to believe that it is prevalent on Big Island, as some of the infected Icelanders went over there. But there is no possibility of confirming that belief, as the lake is not sufficiently frozen over to permit an inspection on our part.

It is quite clear that the disease spread from the north this way, and is already proceeding southwards towards the Red River settlement.

We consider it will be requisite to establish a hospital in Gimli, and that the store house will be the most suitable building for the purpose.

That all the children and adults who have not been affected as yet, should be vaccinated at once.

That several of the houses should be burned, as soon as the inmates can be removed to the hospital.

That the clothing and bedding of those who have recovered should either be burned or disinfected.

That all intercourse between the uninfected and the infected persons should be strictly prohibited.

That with the approval of the Lieut.-Governor of Keewatin, a quarantine should be established at Netley Creek, and that Mr. Joseph Monkman be stationed there, as he has great influence with the Indians, and they place unlimited confidence in him, and he will be equally acceptable to the Whites.

That a full supply of medicines and medical comforts should be procured at once.

That we fully appreciate the promptness with which you have carried out the suggestions we have made.

That we regret that the disease has made its appearance in your own household.

That we also have to thank Mr. Beatty for facilitating our progress on the road, and placing his tents at our disposal.

We have the honour to be, Sir,

Your obedient servants,

(Signed,) DAVID YOUNG, M.D.

“ JAS. S. LYNCH, M.D.

Mr. JOHN TAYLOR,
Icelandic Agent.

REPORT ON ICELANDIC ROAD.

GIMLI, 18th September, 1876.

SIR,—In accordance with your instructions we beg to submit the following report relating to the Icelandic road. The work of locating the road is progressing favourably, and a fair route obtained. We are satisfied a road such as Mr. Beatty is instructed to build can be made for at least one-third less than the estimate (\$200 per mile) and beg to suggest that the balance of the appropriation, after building to Eagle's Nest, be spent in extending the road northwards to Sandy Bar, where a large number of the colonists are located.

The Icelanders are at present all engaged either in cutting hay, or building houses, but this work over, as it will be shortly, they will then work on the road; we expect to break ground with a small party, of, say 20, the day after to-morrow.

In our opinion it would be most satisfactory to pay labourers one-half cash, and one-half in such supplies as they may require, a list of which Mr. Taylor has already furnished to your Department.

We have the honour to be, Sir,

Your most obedient servants,

JOHN TAYLOR,

Icelandic Agent.

“ WALTER BEATTY,

D. L. Surveyor.

The Honourable,
The Minister of Agriculture,
Ottawa.

No. 30.

REPORT OF ASSISTANT ICELANDIC AGENT.

(S. JONASSEN.)

ICELANDERS' RIVER,
KEEWATIN, 31st December, 1876.

SIR,—In compliance with your instructions, I have the honour to submit to you a report of my operations as Emigration Agent to Iceland during the year 1876.

Having received your letter of instructions, dated September 14th, 1875, directing me to proceed to Iceland, I left Canada for England on the 30th of that month, and arrived in London on the 14th of October.

Immediately upon arriving in London, I put myself in communication with the Agent General, from whom I received further directions, and who provided me with a pamphlet expressly prepared for the people in Iceland, and printed in the Icelandic language, together with maps and other printed matter containing information about the Dominion of Canada.

There being no regular communication between Great Britain and Iceland, except by the Danish mail boat, which leaves Copenhagen and Iceland only once in six weeks, and calls at Leith, Scotland, and Lerwick, Shetland, alternately on her way, I was compelled to wait for that boat a month, and consequently did not reach Reykjavik, the capital of Iceland, till the 27th of November.

After eleven days' stay in Reykjavik, which time was occupied in procuring the necessary outfit for the long and difficult overland journey, I left for the northern portion of the island, where, according to your instructions, I was to commence operations, and arrived at Akureyri, the principal place in the north, on the 31st of December.

During my stay in Reykjavik, and on my way north, I spoke with great numbers of people and found many in the south favourably disposed towards emigration, but far more so in the north. I distributed the pamphlets and maps everywhere along the road, which were eagerly read by many.

At Akureyri I met Mr. Krieger, who had arrived there during November. We had repeated consultations about the *modus operandi* to adopt, in order to overcome the many serious obstacles placed in our way by the opposition of the officials, the strict Emigration Law which had been recently passed, and the great difficulty in starting a large emigration on account of the existing scarcity of cash, which prevented the people from finding buyers for their stock and other property, even at greatly reduced rates, as alluded to in my monthly reports forwarded from time to time.

It was decided between Mr. Krieger and myself that he should return to Reykjavik and arrange with the Governor about the deposit of ten skillings, until the guarantee required from the steamship company, which eventually would undertake the carrying of the emigrants, was deposited with the Governor, and that I should visit the volcanic district in the eastern part of the island. After having visited several farms in the neighbourhood of Akureyri and held two meetings, I left for the east on the 11th of January.

I reached the volcanic region on the 21st, and travelled through the pumice damaged district, holding meetings in several places, which were well attended considering the long distances the people had to go to attend them. I also visited the adjoining districts and held meetings wherever practicable, which were invariably successful, and proved to me far more effective than travelling from farm to farm and speaking with people individually.

It being absolutely necessary for the successful carrying out of our scheme that accounts of my eastern tour, and reliable information about the number of emigrants from that port should reach Reykjavik by the first south-bound mail from Akureyri, I had to work very energetically to obtain this result, and return in the middle of winter, across the mountains that divide the east and the north. However, I succeeded in this, and reached Akureyri before the end of February. On my way from the east I held several meetings in the counties through which I travelled, and found my labours everywhere rewarded by fresh additions to my list.

Having returned to the north, I lost no time in getting everything in order, as regarded the forwarding of an account of the state of things both in the east and the north to Mr. Krieger, who was, if the accounts were favourable, and a sufficient number of deposits were sent to Reykjavik by the March mail, to proceed to England and arrange about the shipping of the emigrants. In order to accomplish this object I made a hurried tour to see the sub-agents appointed in three counties south of Akureyri, before the mail got beyond my reach. Having ascertained the number of intending emigrants in these counties, and adding it to the number from the east, I found to my great satisfaction that a sufficiency was secured to make it possible to arrange for a special steamer for their conveyance. I continued operations in these counties after the departure of the mail, and held several meetings until the arrival of the mail from Reykjavik, when I returned to Akureyri early in the month of April, to receive final lists from the volcanic region and the neighbourhood of Akureyri, which were to be forwarded to Reykjavik by the next mail.

When I returned to Akureyri the drifting ice, which sometimes in the spring and early part of the summer completely blocks up the bays and firths, cutting off all access to the northern portion of the Island, was moving towards the shore, threatening to destroy the fruit of my winter's labour. After having completed all necessary arrangements in the north, I therefore decided on recrossing the island, in order to meet Mr. Krieger on his return to Reykjavik from England. Consequently I left Akureyri on the 22nd of April, and reached Reykjavik on the 5th May, where I met Mr. Krieger. We conferred about different important points, and particularly about the difficulty arising from the ice. After considering the matter carefully, we settled the sailing date of the emigrant steamer from the different ports in Iceland, and I returned to the north to announce those dates to the intending emigrants, and prepare them for the arrival of the steamer.

Fortunately, our calculations concerning the ice turned out right, it leaving the shores a few days previous to the arrival of the steamer at the first calling port on the 27th of June. Having embarked almost as many as the steamer's capacity by law would allow her to carry, at three different ports in the north, I left Iceland for Scotland on the 2nd of July, with a party of 752 souls. The emigrants from the east, numbering 392 souls, were to be embarked at a port in the east of the island as soon as the steamer could return from Scotland.

After a few days' stay in Glasgow, I sailed with the party from the north on July 12th in the Allan Line Steamer, "Austrian," arriving at Quebec on the 22nd. Thence I proceeded with the emigrants westward the next day, and after a few days stay in Toronto the journey was resumed for the North-West, arriving at Winnipeg on the 8th of August. I left Winnipeg on the 14th, and accompanied the party to the Icelandic Reserve on Lake Winnipeg, and arrived at Gimli on the 20th.

The emigrants from the east of Iceland arrived at Gimli a few days later, in charge of Mr. Halldor Bri ur.

I spent a fortnight in the Icelandic Reserve, which time I occupied in assisting

the emigrants to find suitable locations, and then returned to Winnipeg on September 5th.

On the 8th I left Winnipeg for Ontario, but being detained on the Lakes I did not arrive in Ottawa till the 27th of September.

Upon receiving an appointment, dated October 2nd, as an Assistant Agent in the Icelandic colony I left Ontario for the North-West on the 4th, arriving at Winnipeg on the 16th. I left Winnipeg for the Icelandic Reserve on the 21st, arriving at Gimli on the 26th. On the 28th I proceeded north to this place, which is about 30 miles distant from Gimli, with a schooner-load of supplies for the northern portion of the colony, and am now in charge of the store at this point and Sandy Bar.

On the 16th inst., I went to Gimli to assist Mr. Taylor, in the distribution of provisions for the south portion of the colony, and returned on the 22nd to complete the distribution here.

I have the honour to be, Sir,

Your obedient servant,

SIGTR. JONASSEN,

Assistant Icelandic Agent.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 31.

CANADIAN IMMIGRATION TO MANITOBA.

(C. LALIME, AGENT.)

MANITOBA IMMIGRATION AGENCY,
WORCESTER, Mass., 22nd January, 1877.

SIR,—In the first report, which I had the honour of submitting to you last year, as Immigration Agent, I foresaw, for 1876, a considerable emigration movement from the New England States towards Manitoba.

The great majority of the people among whom I have worked, are composed of men who were formerly farmers, who, by reason of the exceptionally hard times which we are passing through, earnestly desire to return to their former employment.

A fair proportion possess savings, and wish rather to employ their stock of money on farms than to spend it to support them while out of work in the United States.

I especially devoted myself to recruiting colonists among this class. To this end I not only called meetings in the populous centres, but I even visited at their own dwellings those people whom I believed to be suited for the establishment of a colony on a solid basis.

I have done all that was possible to bring to a happy consummation the work you did me the honor to entrust to me.

The present report will make you acquainted with the results which I have obtained after having imparted to the Canadians of New England a knowledge of Manitoba. After having held meetings in the different centres, I organized a colony, and fixed its departure from Worcester, Mass., for Manitoba, on the 5th May. That day having come round, I set out with one hundred and eleven souls (of this number were Dr. Tremblay and Mr. H. Trudel, sent as delegates by the Canadian population of the town of Manchester, N.H., four thousand souls at least). These gentlemen made a favorable report of their visit. They purchased lands, and owing to the valuable information which they furnished to the people of Manchester, several Canadians of this, the principal town of New Hampshire, took the road to Manitoba, and will be followed by a good number next spring. Dr. Tremblay has sent on his brother, who has already prepared a large settlement, and he intends to go and establish himself in the Province next spring. It is thus seen that the Doctor has preached by example. Mr. Trudel has done the same thing; one of his sons has already preceded him to Manitoba.

According to the instructions of your Department, we took the lake route. The ice in Lake Superior hindered our steamboat in several places by its accumulation.

We remained for eleven days fifteen miles from Duluth, nipped by the ice, without being able to go forwards or backwards. Famine threatened on board, and we endured much privation.

This unforeseen delay was the reason why we only arrived at Manitoba at the beginning of June. The season was advanced, but our colonists, with a courage worthy of the very highest praise, began immediately to break up the prairie, and effect the sowing. A good number established themselves in Township No. 2 of the 1st Range East; the rest went to St. Boniface, and thence into the neighbouring parishes.

At Dufferin, the Government Agent, Mr. Têtu, received us like a friend, and it will be long before our colonists forget the services he rendered them.

At Winnipeg the Colonization Society had prepared a reception in due form; the officers of this society deserve our thanks and an expression of our gratitude, which I am happy to offer them in the name of all the colonists.

Done in the middle and end of June, the sowing could not be extensive; nevertheless, although sown so late in the season, the lands of our colonists yielded results that came up to their expectations. The harvest has been abundant, the return has been generous, and our colonists are greatly encouraged. The greater number have built houses and barns, dug wells, and considerably bettered their position.

The letters which they send to their relations and friends and to our various newspapers in New England, are full of details which form a powerful incentive to emigration, and in order that you may be able to judge of this yourself, I send you copies of several of these letters, taken from the newspapers in which they were published. I will especially draw your attention to one of these letters published in the *Le Foyer Canadien* and the *Travailleur*, of Worcester, Massachusetts, and signed collectively by more than thirty colonists who have come from the Eastern States. This letter is an answer to some false reports tending to lower the Province of Manitoba in the eyes of strangers. From these letters it can be seen that they are satisfied with their emigration, and that the future seems to smile upon them.

The Colonization Society of Manitoba conceived the happy idea of sending to me in November last, some magnificent specimens of the agricultural products of the Province. I have exhibited these cereals and vegetables in the great centres, and everywhere they have excited the admiration of visitors.

Among these products were turnips weighing 17½ pounds, beet roots of 15 pounds, potatoes of 2 pounds, and onions of an astonishing size. These various vegetables were produced without manure, without special cultivation. The richness of the soil makes them spring up without any other work for the farmer than the mere sowing.

The emigration of Canadians from the United States into Manitoba continued from the month of May to the month of October. In the month of October I thought it right to stop the movement and prepare for the winter's campaign for disseminating information, for I was then obliged to delay the departure of nine families in Massachusetts who, unfortunately had completed their preparations for setting out, but it was necessary that I should follow the instructions of Messrs. Beatty & Co., of Sarnia, Ontario, of date the 9th October, 1876, announcing to me the closing of navigation on the Red River.

The total number of persons whom I have directed towards Manitoba is three hundred and sixty-one. The number of applicants has been much greater, but I thought I ought, in the interests both of the Province and of the applicants themselves, to refuse passage tickets to a great number who had not the capital necessary to build up a good settlement. Those who have reached the Province are all, with but few exceptions, in the way of making enduring establishments, if I can judge from the letters which I receive since they have been settled in the Province.

Next spring a colony, which I am now engaged in organizing, will start for Manitoba, and will be followed by a good number of other emigrants. The financial crisis and the stagnation of industry in the United States are calculated to assist the movement powerfully. I therefore foresee for this year a stream of navigation towards Manitoba still more considerable than that of 1876. At the present time when the Province is better known, and the fertility of its soil is proved, &c., it will be easier to induce colonists to direct their course toward the prairies.

The Government and your Department may justly congratulate themselves on the national policy which you have adopted with regard to the Canadians of the United States. It is already bearing happy fruits. It gives a favourable opportunity to a great number of loyal British subjects to return to Canada, an opportunity which I believe a great many will take advantage of in the future.

With this noble work, eminently a national one, you have particularly identified yourself, Sir, inasmuch as your distinguished protection as had the effect of inspiring our emigrants with much confidence.

I ought also officially to thank the able Secretary of your Department, Mr. Lowe, who is always so devoted and so well disposed towards everything connected with immigration. I have found in this gentleman a wise adviser, always ready to furnish me with the information I had need of. With such sympathy and such kindness shewn to me, I am enabled to work without being too much discouraged in the face of the obstacles I had to overcome.

Before closing the present report, I cannot refrain from thanking the officers and employées of the firm of Beatty & Co., whose steamers form a line between Sarnia and Duluth, for all their kind behaviour and generosity shown towards me and all our immigrants during our voyage last May in the midst of the ice on Lake Superior.

I have the honor to be, Sir,
Your obedient servant,
CHARLES LALIME,
Special Immigration Agent for the Province of Manitoba.

To the Honourable
The Minister of Agriculture,
Ottawa.

Letter Published in the Newspaper "Le Travailleur" of Worcester, Massachusetts, 31st August, 1876.

TOWNSHIP OF LETELIER, 13th August, 1876.

SIR,—Knowing your devotedness to the cause of emigration to Manitoba, we beg you to publish in your journal the following information in relation to the settlers from the Eastern States who emigrated to Manitoba in May last, and became the pioneers of that emigration which is already beginning to assume large proportions. In publishing this you will bear in mind that it is the work of a hand more habituated to hold the plough than the pen.

In May last, when we took our departure from the United States, we left a large number of relatives and friends whom we had promised to supply with news. They all said: "Write and let us know all about the country, and, if you report favourably, we will go out to you."

Our friends will pardon our silence. A settler has everything to do when he arrives, and this has prevented us from complying with their wishes.

The first party of Canadians from the United States, accompanied by the Government Agent Mr. Charles Lalime, of Worcester, on arriving at Dufferin on the 29th May last, divided itself in two. Some preferred going directly to St. Boniface, which is about 60 miles further, and the others, whom we accompanied, stopped at Dufferin, in order to settle on the reserves granted to us by the Government.

At Dufferin we took up our quarters in the Government buildings, until such time as we should select our lands.

On the 30th we visited the four townships reserved for the Canadians. This took us three days. We had torrents of rain for half the time, and when we returned the lands were nearly inundated. The soil of these townships, with the exception of one, is nearly all utterly unfit for settlement. We found a great deal of sand and quantities of stone. On the following days we continued to seek for land to suit us, and on the 5th June we took settlement and preemption rights in Township No. 1, 2nd Range, on the west side of Red River. In order to secure registration, we went to the Land Office at Emerson, a small village one mile and a half from Dufferin, and we each had to pay \$10 (for fees) only, to become proprietors of 160 acres of first quality land.

On our return to Dufferin, we went to work and bought cattle, farm implements, seed grain, &c.

We went on the land in the middle of June, and thinking the season too far advanced for a good crop on a first ploughing, we obtained, free of charge, on the Government farm at Dufferin, land which had already been broken up, and combining together, to the number of 15 heads of families, we seeded down $37\frac{1}{2}$ bushels of barley, 63 bushels of potatoes and two bushels of buckwheat, turnips and other vegetables. During the two following weeks we had not a single drop of rain, and thought we had lost both our time and our seed. But then there came a few showers and everything grew with amazing rapidity; we are now almost certain of a large return.

On the 26th June we went on our lands with tents, ploughs, provisions, &c., and began to break up the soil, dig wells and build houses.

In relation to wells, I may say that, water being one absolute necessary of life, we turned our attention to it the first thing. Some pretend that it is very difficult to procure water in Manitoba, but such is not the case, at least in the township in which we are located. Here is the proof: The soil consists in the first place of from two to four feet of black earth, as many of grey earth and then hard, rust-coloured clay. The difficulty is, that this clay, particularly if it rains, crumbles down easily, and then you have to begin over again. Mr. Norbert Clement did not have that trouble; we dug and framed his well in two days, and the crumbling of the earth did not delay us over half an hour. The well is 14 feet deep, and the water is so abundant that we have to empty it every week. When the well is a long time full to the top the water becomes warm and tastes of the wood with which it is in contact, as is natural enough, whereas in two hours after the well has been emptied, the water is perfectly clear, cold and good for drinking and every other purpose, except washing clothes. For washing purposes it is easy to do as is done in every Canadian village, provide casks and gather the rain water, which is abundant enough, at least this year.

Out of nine wells we have dug, or begun to dig, there are three in which the water has a bitter taste and cannot be used, but three arpents away the water is good and abundant.

I may state, for the benefit of those who wish to know what progress we have made, how much land we have broken up, and how many houses we have built, that we stand as follows. You may perhaps say, "you have done but little." This is possible from your point of view, living as you do in large towns, where you have everything to hand, but for our part we are satisfied with the little we have done, and would not exchange our position for yours in the great manufacturing centres of Massachusetts and Rhode Island.

It must not be expected that we should be able to build with the same facility and rapidity as in towns, nor that the first ploughing in virgin soil should be as easy as in old land. Let those who think so undeceive themselves. Here we do the first ploughing with a good yoke of oxen, and have to work short days. In building we have to go nine miles for the timber, and often have to wait a week for what we need. There are a large number of buildings in course of construction on every side, and there is but one lumber yard on this side of the line, and (a word to lumber dealers) it is often out of lumber. Since our arrival the owner of the lumber yard in question has largely increased his purchases.

Moreover, we have just been informed that a new lumber yard has now been opened close to the frontier. All our wants will be abundantly supplied.

The following will show the progress we have made with our lands: Messrs. Norbert Clement and son, F. H. Mercier and T. Brault have formed a kind of co-operative society, and with but one yoke of oxen have broken up ten acres of land, dug a well and built two houses, one of them 20x16, very well finished outside, with cornices, and clap-boarded, belonging to Mr. Clement; the other 24x16 belonging to Mr. Mercier. The latter is not quite finished. We are waiting for the lumber. Meantime, we are building a house for Mr. John Parent, 23x21, of which we shall finish the exterior next week. Mr. Coulombe's turn will be next. Mr. Parent has, with a single yoke of oxen, broken up about 30 acres of land, and dug a well but five feet in depth, which nevertheless furnishes all the water he wants for his family and his cattle.

Gaspard Breton and his son have broken up some 20 acres of land, put up a board shanty, and dug a well. The Brothers Boiteau have done the same, and so on with the others, each one having broken up more or less land.

As to hay, each person has made from 10 to 20 tons. We make as much of it as possible, and it is here in immense quantities. We have it on our land and only require to cut and stack it.

When we first reached our lots some of our party became for a time discouraged on account of the difficulty of finding water, and decided to seek elsewhere for a more suitable location. After losing a week or two of their time and spending quite a sum of money they returned to their lots, and are now working as hard as they can to make up for lost time.

The harvest is, generally speaking, splendid, and such as to fill with delight every lover of agriculture. No man having an ounce of common sense can avoid praising the Government for the advantages afforded to emigrants, and I cannot understand why so many of our poor Canadians who are slaving in American factories do not hasten to avail themselves of this splendid opportunity of making a fortune while it is yet time. I say a fortune, and you can judge for yourself from the following fact selected from a thousand.

A few days ago we had occasion to converse with a Mr. Anderson, an Irishman, who lives on the opposite side of the River Au Marais. He is our neighbour. He told us that three years ago, when he took up his homestead, all his means consisted of \$30 in money, but he had friends from whom he borrowed the price of a yoke of oxen. He put in a small crop, built a little shanty, and brought in his family. He has since built a good house, bought several head of cattle, and now uses his shanty as a stable. In short, he has provided himself with everything necessary for his family, and if you were now to offer him \$3,000 for his farm, the answer he would make you would be the short one—*No, sir*. What do you say to that fact? Bear in mind also that during the three years in question the grasshoppers did more or less damage to his crops. If that fact should fail to satisfy many persons I cannot see what they would have.

I do not mean to say that every man who is as poor as Anderson, will succeed as he has done, for there is no lack of people who want to make a fortune without working. Many emigrate thinking to find a fortune here without earning it—wealth without work. They find themselves mistaken, and when they go away they strive to cast discredit on the colony, by means of the grossest falsehoods. They have not succeeded because work is as necessary here as elsewhere; and on this head we advise all persons who have not money enough to build a house and purchase a yoke of oxen, a plough, &c., with enough of provisions to enable them to wait for the first crop, to strive to realize the necessary funds before they come out to us.

Here there is no calculating on getting outside work, at least for this year, but the harvest was so abundant that a very small amount of seed will suffice to furnish food and necessaries for a year or more.

Now you will say to us: You who know something of the matter, since you have settled in Manitoba and on the Government lands, what amount would a settler need to have in hand in order to make a proper start? This is our answer to the question:—Lumber for building is selling this year for \$24 the thousand feet; cull boards, \$20; planed on one side \$25; first quality shingles, \$4.50 per M; clap-boards, \$35; nails, \$5 per 100 pounds; windows glazed, \$2 and \$2.30; cordwood, quite near at hand, \$2 per cord, or \$3 delivered. To build a house 24+16, well finished outside, except painting, we calculate that it takes \$200. A yoke of oxen \$125 to \$150; a plough \$24 to \$25. Flour is now selling at \$2.25 to \$3.50 the bag, which is \$5 to \$7 the barrel. Pork is worth 13 cents. Cows are worth from \$20 to \$50, according to condition. Then there are the provisions required to carry you over to the next harvest.

In our opinion a family possessing \$500 and over may come without fear, and the sooner they come the better they will be satisfied.

Two families with \$500 might succeed by uniting together to meet the first out

lay, build but one house, have but one yoke of oxen, and form a kind of partnership, still it would be necessary to have provisions for a year. In the same way two single men working together for a year or two would succeed.

Before concluding we may state that the only annoyance and the only trouble we have, is the want of the necessary farming means to enable us to push on our work as we desire, and for that we should require a yoke of oxen each. Nevertheless, we are full of confidence and hope in the future, and we are sincere in saying that if, in three or four years from this, any one should come and offer us \$3,000 for our farms, we are convinced we shall be able to answer with Mr. Anderson, *No, Sir.*

A word more before closing. The grasshoppers have not as yet visited us this year, we are all but certain not to have any next year, and we hope to be many years without seeing them.

We have the honour to be, Sir,

Your obedient servant,

TOUISSANT BRAULT,
 NORBERT CLEMENT,
 FRANÇOIS XAVIER MERCIER.
 FRANÇOIS PARENT.
 GASPARD BRETON.

Letter Published in the Woonsocket (Rhode Island) "Reveil" in September, 1876.

(LETTER FROM MANITOBA.)

St. BONIFACE, 1st September, 1876.

C. LALIME, Esq.

DEAR SIR,—You send me news from Fall River. Allow me in return to send you a word about my new country, Manitoba, where I am very well satisfied to have settled.

Several members of my family joined me, and together we bought farms in the parish of St. Agatha. That parish is, as you know, situated on the banks of the Red River. We are some 25 miles from St. Boniface. A new mission has been founded in the very locality where we are, and we shall soon form a new parish; we have already a chapel, and the priest from St. Agatha visits us every fortnight.

As you may suppose, we are all quite satisfied, but courage and perseverance had to be shown, as upon them success depends.

It has been reported to me that some persons who have come here take a pleasure in circulating exaggerated reports about Manitoba; I am sorry for those people, for they would have done better to have told the truth. Every one here agrees in contradicting those entirely false reports.

Let what will be said, this year we have neither grasshoppers nor frosts, nor even any natural casualty of a character seriously to injure the crops. The year has been very rainy and certain low lands may have suffered a little, but there is plenty of land here; few people are exposed to those inconveniences, for only lands which are easily drained are sowed.

The scarcity of wood has been frequently spoken of; true it is that it is not found everywhere, but there is no lack of places where it is found in tolerably large quantities. Firewood is sold at present at from two to four dollars a cord in town, and from one to three dollars in the country. Those prices are not unusual. Old residents here tell me that for ten years scarcity of wood in the country has been predicted, and yet it can be bought at a cheaper rate now than then. There are considerable mines of coal not far from here which will be worked before long, so that so far as fuel is concerned, we have nothing to fear.

You will, I trust, my dear Sir, forgive my troubling you with these remarks; I wish to contradict certain assertions about the country made by persons who, though not evilly disposed, allow themselves to circulate rumors which are not truthful.

Truly your

ANTOINE LEVALLEE.

Letter published in the "Foyer Canadien" in September, 1876.

MANITOBA, 14th September, 1876.

To the Editor,

SIR,—The courageous settlers at Dufferin and the vicinity having publicly expressed their entire satisfaction, we, in our turn, request you to communicate to our countrymen what we think of Manitoba.

Since our arrival we have been sufficiently initiated, as respects everything with which immigration is concerned, to form an opinion as to the truthfulness of the reports contained in our newspaper and communicated to us by our delegates and by friends of colonization in this country.

If some few people, whose expectations were too great, have gone back upon the pretext that the resources and advantages of Manitoba had been exaggerated, we have to say, on the contrary, that by so doing they were guilty of great injustice to those who received us in so brotherly a manner, and to the country, possessed as it is of so rich a soil.

More than this, we should not be surprised to see those self-styled disappointed persons return before long in the train of others.

It has been correctly stated, the steady farmer who knows how to work, and is willing to do so, is sure to succeed. Farms are sold at excessively low prices, and the yield is enormous. We consider that we are doing our countrymen a service when we request you to reproduce in your excellent paper, so devoted to Canadian interests, the accompanying article from the *Métis* respecting the crops of 1870.

It will constitute the firmest, most convincing and least suspicious plea in support of the cause which we favour. The remarks of the French organ in Manitoba, concerning the few persons who return most frequently for the most frivolous reasons, are very judicious. We endorse them in every respect and unite our voices to that of the *Métis* in saying to our countrymen:—

"If you are tired of the noise of the shop, if your prospect where you are is not a smiling one—if, in a word, you are willing to work the soil and to devote yourself to agriculture, come to Manitoba."

P. H. Prince,
P. L. Heures,
C. Girard,
N. Lavallée,
Jos. Lemaine,
Paul Lavallée,
N. Jutras,
Jos. Caron,
Jos. Armstrong,
W. Prince,
Noel Sicotte,
Jos. Precourt,
Loius Malo,
Jos Parent,
E. C. Prince,
Jos. Ranger,
and several others.

A. S. G. Degagnier,
Roger Sicotte, Snr.,
Esdras Carignau,
Ant. Lavallée, Jun.,
R. S. F. Sicotte,
Ant. Lavallée,
Julien Poirier,
Jules Poirier,
C. Marcoux,
Jos. Lefort,
Ed. Marcoux,
J. Gibaud,
Louis Marciel,
Jos. Coutte,
G. Lanciault,
V. L'Allier Marchetson,

Letter published in the Woonsocket (Rhode Island) "Courier Canadien" in October, 1876

TOWNSHIP OF LETELLIER,

MANITOBA, 5th October, 1876.

To the Editor,—

SIR,—Great was our surprise when we read in the columns of the *Manchester Globe* the estimate which Mr. Douat Morency had formed of the Province of Manitoba, about which he appears to know absolutely nothing.

Did Mr. Morency pick up his information during his trips between St. Boniface and Winnipeg? Or can it be that the country did not suit him because he, who came here expressly to engage in farming, did not succeed in getting a place as a clerk?

If he had had the power of observation with which ordinary persons are endowed, he might, during his journey to Baie St. Paul, have seen fields which, on an average, yielded the following crops to the acre:—

Wheat, 40 bushels; barley, 70 bushels; oats, 65 bushels; peas, 40 bushels; potatoes, 200 bushels.

There is more eloquence in these figures than in the misplaced criticism uttered by Mr. Morency, who has relatives here who think better of the country than he does, being in a position to speak of it with a knowledge of the facts.

We wish here, Sir, to be allowed to correct certain inaccuracies which are too glaring not to call for contradiction.

Of all those who have settled here not a single one of us have hitherto expended eight hundred dollars, and several have houses built, own oxen and cows, have from thirty to forty acres of land broken up, &c. Provisions are most certainly cheaper than in the Eastern States in spite of this being the first good harvest which has been gathered in for several years. Flour of the first quality is worth three dollars a bag or six dollars a barrel, and will probably be cheaper before long. Let Mr. Morency say what he will, the cattle are very fat, and it is absurd to assert the contrary when the enormous quantity of hay which the country produces is taken into consideration. There is no lack of water in our townships, and we have latterly thanks to the Manitoba Colonization Society, become possessed of an auger which will enable us to bore for a larger quantity if it should ever be necessary. Oak firewood is sold on the Red River, at from two to six miles from our townships, for \$2 a cord. And as to building timber the price is about the same as in the Eastern States. It is only fair to add that as three new lumber yards are to be opened in the spring, prices will certainly go down.

A coal mine has just been discovered, which will ensure us fuel for the future at a low rate; the road to reach it must necessarily pass through our townships, thus imparting a great value to our land.

Mechanics' wages are never less than \$2.50 a day and are oftener \$3.00. Mr. Morency, who talks about mosquitoes could certainly not have suffered from them at St. Boniface or at Winnipeg, where he passed nearly all his time.

The emigrant, he says, is ill-treated on his arrival here. How does he, who passed through no agency here, know that? The only emigration agent with whom he had to do is Mr. Lalime, of Worcester, who gave him his emigrant's ticket, and against whom he should certainly bear no ill-will.

That assertion is as false as it is malicious, since it attacks the official character of a class of public officers who certainly do their duty. We here avail ourselves gladly of the opportunity of expressing publicly the gratitude which we owe to Mr. J. E. Têtu, Immigration Agent at Dufferin. His urbanity and activity in relation to all emigrants, let their class or origin be what they may, has never been denied, and God knows what labour and patience is required to satisfy the emigrant on his arrival.

Take friendly advice, Mr. Morency, your youth, your entire ignorance of the country of which you speak, far from entitling you to deny the statements already publicly made by us about the country in the columns of the "*Travailleur*," should

make you keep silence. Remember that the country offers great advantages to the tillers of the soil, the only class of emigrants who for the present have been invited to come and settle here; and in future let not your general estimates of a country be based on self deception.

The lesson may be a rough one, but it must be imparted in order to prevent others from committing the same fault as yourself, that of not speaking the truth while talking in ignorance.

Thanking you, Mr. Editor, for the great space which you have kindly granted us in the columns of your patriotic journal,

We have the honour to be, Sir,

Your obedient servants,
Toussaint Brault,
Ambroise Godard,
Alfred Duhamel,
Joseph Fournier,
Lucien Tremblay,
François Ruel,
&c., &c., &c.

François Mercier,
Norbert Clement,
Joseph Godard,
Joseph Lepine,
Ls. Lafrance,
Adolphe Lacharité,

No. 32.**REPORT OF OCEAN MAIL OFFICER.**

(W. J. BOWES.)

PORTLAND, MAINE, 29th January, 1877.

SIR,—My efforts in behalf of immigration during the past year have been in the distribution of information furnished from your Department, verbal explanations regarding the resources, soil, climate, and extent of the Dominion, with replies to questions which frequently arise on board the Canadian steamers.

I also visited the Province of Manitoba, and was forcibly impressed with the satisfied condition of the Mennonites and Icelanders who settled there, and was pleased to witness the kind and careful treatment extended to them by the officers of the Beatty line of steamers and Mr. Hespeler, the Government Immigration Officer at Winnipeg.

I am, Sir,

Your obedient servant,

W. F. BOWES.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 33.

REPORT OF OCEAN MAIL OFFICER.

(SAMUEL J. GREEN.)

LEVIS, 3rd February, 1877.

SIR,—I have the honour to submit my annual report. I found the tide of migration across the "Atlantic" for the last year about equal, in consequence of the stagnation in all kinds of business and labour generally. Still, with honest convictions that the "Dominion of Canada" was the best place in its final results for the middle man, and all below him, to arrive at independence, I have assiduously explained to those that have travelled with me its advantages, and furnished them with the books, &c., of instruction issued by the Department for their guidance.

I am satisfied that nothing that has heretofore occurred will do more to enlighten the people of "Great Britain" as to the fertility and productiveness of "the Dominion" than the new trade that has been inaugurated between the two countries in sending horses, cattle and meat across the Atlantic. The latter is a blessing to all housekeepers, reducing the price of that luxury to them 3 and 4 pence on the pound, and a never failing source of conversation and enquiry at every table.

Now that the "Atlantic" can be crossed within the week, I think our productive seaboard could be made to equal if not succeed the above trade, by transporting such fish as *fresh* salmon, cod, haddock, mackerel and herrings, not forgetting lobsters and oysters. All of which have increased double, and in some instances fourfold, in price within a few years in England.

Trusting I have not infringed on a subject foreign to my duties, in the above, and assuring you it is drawn from me through zeal for the general welfare of all, I beg to subscribe myself,

Your most obedient servant,

SAMUEL J. GREEN,
Marine Mail Officer.

The Honourable
The Minister of Agriculture,
Ottawa.

No. 34.

REPORT ON HALIFAX CATTLE QUARANTINE.

(A. McFATRIDGE, INSPECTOR.)

HALIFAX, January 22nd, 1877.

SIR,—I have the honour to report that no cases of disease have occurred during the past year in my district.

I have the honour to be, Sir,
Your obedient servant,

A. McFATRIDGE,
Veterinary Surgeon.

To the Honourable
The Minister of Agriculture,
Ottawa.

NO. 35.

REPORT OF ASSISTANT ICELANDIC AGENT ON SMALL-POX.

(S. JONASSEN.)

GIMLI, KEEWATIN, 20th January, 1877.

SIR,—In compliance with the request expressed in your letter dated the 5th ult., which, however, did not arrive here till yesterday, I have the honour to report as follows concerning the small-pox epidemic in this colony:—

When I arrived here at Gimli on the 26th of October last, I heard that some kind of eruptive disease had broken out amongst the Icelanders at Icelanders' River, and that a few cases of a similar kind had occurred near Gimli, proving fatal to one person. No one seemed to take much notice of it then, and the general opinion was that it was not the small-pox.

Upon arriving at Icelanders' River on the 30th October, I found that the disease had made its appearance in most of the houses, several families being crowded together in one, they not having completed nearly all of their houses, and that those who had caught the disease were all recovering without others being taken sick, and only one death had taken place from it. I, therefore, thought it would not trouble us any more, so I left matters in abeyance. Some days later the disease revived, and three deaths took place up to the 9th of November. I then immediately made out a report of the case to Mr. Taylor, and sent a messenger with it to Gimli. I requested Mr. Taylor in this report, of which I have the honour to submit a copy, to procure medical aid, and received an answer on the return of the messenger, that he would do so at once. According to Mr. Taylor's request, Dr. Young of Lower Fort Garry, came to Gimli on the 22nd, and Dr. Lynch, of Winnipeg, who was sent by Captain Provencher to relieve the Indians at Sandy Bar, arrived there the same day. The latter called at my house at Icelanders' River on the 25th, he having to see some Indians in that neighbourhood, and went with me to a few of the Icelanders' houses to examine some of the patients. He declared the disease to be mild small-pox, and gave me some instructions as to the proper treatment of it, but he had no medicine and returned the same day. Some additional deaths had taken place before he arrived.

About the same time as the disease assumed so serious features at Icelanders' River, it broke out with full force at Gimli, but the physician that Mr. Taylor had sent for arrived a few days afterwards, and a hospital was established at Gimli before the end of the month, concerning which Mr. Taylor has sent in a full report. The rapid increase of the disease was no doubt in great measure due to the cold weather, which set in about the same time, compelling the people to crowd into their houses more than before, which in many cases were only small temporary dwellings, and only intended for use until they had finished their better ones.

Mr. Taylor had some old vaccine matter which was tried at Gimli, but did not take on any person, and which I tried on several persons on Big Island with similar results. I wrote to Mr. Taylor several times requesting him to try to get some good vaccine matter, but both he and the physicians failed in their endeavours to obtain it. This was most lamentable, as the greater portion of the colony could have been saved from the ravages of the disease if it had been obtained about the middle of November, and even until late in December, it would have done much good.

Now the disease has extended itself to all parts of the colony, only 12 houses having totally escaped on the mainland; but on Big Island it has, by exercise of great care on the part of the settlers, been kept within bounds, so it has not extended itself beyond two houses, in which it almost simultaneously broke out more than a month ago, after the arrival of a man who came from Gimli, infected by it. The disease was introduced into the third house on the Island by a Half-breed guide of one of the physicians, who visited the Island early in December.

The people on Big Island have also used coal oil as a preventative, and ascribe to its application, more than anything else, that the disease has not spread, but whether it has anything to do with it or not, is a point which I shall leave to the physicians to settle. Coal oil has also lately been applied in other parts of the Colony, and it is claimed by the parties using it, that it has wrought some effective cures in bad cases of small-pox.

The disease seems to be lighter on the first settlers than on the new comers, and a much less percentage has died of the former. A large number has died in the whole Colony, principally children and youths. I am now preparing a list of deaths from the small-pox, but have not as yet been able to get all the names. As soon as I have finished it, I shall send it to the Department.

The disease has now exhausted itself at Gimli and Icelanders' River, but is still prevailing in the south end, and between Drunken River and Sandy Bar. I hope it will soon terminate, it having run all over the mainland settlement. I think I am safe in stating that it has attacked one-half of the whole number of the people, but in many cases it has not gone beyond the preliminary symptoms.

The people have kept up a remarkably good spirit during this great calamity, which many who don't know their general disposition nor understand their language, call indifference.

It has been plainly indicated that those who have been properly vaccinated within the last 5 to 7 years, have escaped the disease. This shows that the first cause of the epidemic breaking out amongst the Icelanders may be sought in Iceland, having the fact in view that the authorities whose duty it is to see that every person in the country be vaccinated every five years, have almost totally neglected this their duty of late years.

As to how the disease was introduced amongst the people, it is impossible for me to determine. When I arrived it was asserted that it had been introduced by a boy belonging to the first party, who was left behind at Point Levis with his family, but being taken sick there, during their stay in the Immigrant sheds, was brought to a hospital and sent on with the last party, and arrived at Winnipeg on the 10th September with pox marks on his face and hands. But upon enquiring into the matter I found that the disease had made its appearance some time before the boy reached the Colony, at Icelandic River, where his parents had settled, on or about the beginning of September. None of the party with whom the boy came from Quebec, and who stopped at Gimli, did contract the disease on the road. The disease was brought from Icelanders' River to Gimli in the beginning of October by a woman who died from it shortly after her arrival there. The first case of small-pox did not occur in the family to which the boy belonged, nor did the man who first took the disease have any intercourse with that family.

As the people were nearly a month on the road between Quebec and Gimli, and the disease did not break out until some days after their arrival, it seems almost impossible that they have contracted it in Quebec.

I have the honour to be, Sir,

Your obedient servant,

SUGTR. JONASSEN,

Assistant Agent.

JOHN LOWE, Esq.,
Secretary, Department Agriculture,
Ottawa.

ICELANDER'S RIVER, November 9th, 1876.

DEAR SIR,—I feel it my unpleasant duty to inform you that the disease which you are aware had broken out amongst the Icelanders living on this river, and amongst the Indians of Sandy Bar, before my arrival here 10 days ago, is assuming much graver aspect than when it first commenced, and begins to alarm the people greatly.

When I came here the disease had made its appearance in almost every house, and those that had caught it were all recovering without others being taken sick with it, but about a week ago the disease seemed to revive and several persons who had not been affected by it before were taken sick, and three have died from it during these last four days. At the present moment no less than 15 persons are seriously ill with the disease, and I am afraid that some of them will die. Only one Icelander had died from it in this locality before I arrived, but then it had proved fatal to three Indians at Sandy Bar. Now it has also revived amongst the Indians, three having died from it here and four at Sandy Bar within the last four days, and several more are down with it now. I attribute the revival and fatality of this disease to the severe weather which was experienced some days ago, the people not having finished their houses, and only few having stoves when it came on, obliging them to crowd together. But whatever is the cause, the fact that several have died and many are now seriously sick with it, seems so serious to me that it requires some immediate action.

I therefore send a messenger to you direct with this letter to make you acquainted with the state of affairs, hoping you will be able to devise some means of procuring medical assistance for the sufferers, who are entirely debarred from everything of that kind.

I think it is necessary to have a skilled physician from Manitoba to come down here to examine some of the patients, provide medicine and prescribe the proper treatment of this disease, of which the Icelanders, if it be the small-pox, are totally ignorant, that disease not being prevalent in Iceland. This is so much more necessary as we may expect that the disease will gain strength and spread, the people not knowing its contagiousness and therefore having been very careless in their intercourse. Even in case of its not having been introduced outside of this locality, I consider it necessary to have it examined, so that proper rules and restrictions can be laid down to check its further progress.

I have not vaccinated any of the people here yet, for fear that it might be hurtful to persons already infected with the disease, but I have sent the vaccine lymph to the Island, where the disease, as yet, has not made its appearance, to be put to immediate use there.

In conclusion I shall mention the chief features of the disease.

It commences with headache and fever which lasts about two days before there are any signs of swelling. Then the face swells up and shortly afterwards red spots appear on the face and on the arms, which spread rapidly over the rest of the body. Soon these spots are converted into pustules, sometimes very close together, which erupt and some yellowish matter issues. The eyes are often much affected and extremely painful. Sometimes the throat swells up to such a degree as to render breathing very difficult and the speech inaudible.

Hoping you will give this matter your best attention, and immediate action to provide medical assistance.

I am, dear Sir,

Yours truly,

SIGTR. JONASSEN,

Assistant Agent.

JOHN TAYLOR, Esq.,
Iceland Agent, Gimli.

No. 36.

REPORT OF THE BRITISH MAIL OFFICER.

(MR. A. WALMSLEY.)

HALIFAX, 6th February, 1877.

SIR,—According to instructions received from the Department of Agriculture, I have kept the Mail officers on the Allan Line supplied with books for the general information of emigrants who are on their way to this country, all last summer, and do so at present; also, with information that emigrants may require on the railway. Now that the winter port is at Halifax, and the mails are taken off there, I hope to be of more service to the Department next winter, for I think many will get off here and take the Intercolonial Railway to Canada, thus avoiding the sea voyage to Portland.

I have the honour to be, Sir,

Your obedient servant,

A. WALMSLEY,

British Mail Officer.

The Honourable
Minister of Agriculture,
Ottawa.

No. 37.

REPORT OF THE LONDON AGENT, ENGLAND.

(MR. F. J. DORE.)

CANADIAN GOVERNMENT BUILDINGS,
31 QUEEN VICTORIA STREET, LONDON, E.C.,
1st January, 1877.

SIR,—I have the honour to present a report to you for the year 1876, of the business of the Agency in London, placed under my care.

On the 21st of January last I received instructions to proceed to England to take charge of the London office, left without a head by the resignation of Mr. E. Jenkins, M.P., the Agent General.

Accordingly I left Ottawa on the 22nd of January, and reached London on the evening of the 3rd of February last.

On the following day the books and papers of the Agency were handed over to me by Mr. Adams under Mr. Jenkins' instructions, and I formally took possession of the Office.

On a subsequent occasion, the funds of the Government in Mr. Jenkins' hands were placed at my disposal.

I found that the clerks employed at the Agency by the late Agent General were: Mr. Adams, with a salary of \$1,200 per annum, and an allowance of \$1,460; in all £546 16s 4d, or \$2,660.

Mr. Brodie, with a salary of £480.

Mr. Sinclair, with a salary of £104, or £2 per week.

Mr. Cook, with a salary of £104, do

Mr. Millar, with a salary of £104, do

Mr. Jourdain, with a salary of £250.

Mr. Dixon, with a salary of £123 5s.

Mr. Francklyn, with a salary of £120.

There were also employed in the Office:—

Thomas Egginton, messenger, 21s per week.

William Fidler, caretaker, 10s per week.

A. Pollard, housekeeper.

In accordance with the provisions of the Order in Council for re-organizing and reducing the staff of the London Office, the services of Messieurs Adams, Brodie, Sinclair, Cook, Francklyn and Millar were dispensed with. A *pro rata* remuneration was allowed them according to the practice adopted by the Civil Service of Canada in similar cases.

The following office staff was then left at my disposal:—

Messrs. Jourdain, Dixon and Egginton (messenger).

On the 23rd of March Mr. Daveney, who was then acting as Special Agent in the Leamington District, and the Special Agent at Cork, Mr. J. S. Talbot, were appointed to clerkships in the London Office, and subsequently Mr. Francklyn was reappointed as clerk to the Provincial Agents. I constituted Mr. Jourdain Chief Clerk and Accountant; Mr. Daveney, warrant and shipping clerk; Mr. Talbot general clerk; and Mr. Dixon, librarian.

Since the date last mentioned no other appointments have been made, but W. Fidler, the caretaker at Westminster, who, upon the removal of the office into the City was no longer required, was discharged.

The re-organizing Order in Council further required a reduction in the number of the special and travelling Agents, and the services of Mr. H. J. Richards, Agent for the Channel Islands, and Mr. Murdock, Agent for Glasgow, were accordingly discontinued.

The present staff of paid special Agents consists of :—

HOME.

John Dyke,.....	Stationary agent at Liverpool.
G. R. Kingsmill,.....	Travelling agent.
Thos. Potts,.....	Do do
S. Capper,.....	Lecturer.
Thos. Grahame,.....	Travelling agent.
H. J. Larkin,.....	Stationary agent at Dublin.
C. Foy,.....	Do do Belfast.
J. Murphy,.....	Do do Limerick.
A. G. Nicholson,.....	{ Travelling Agent in the Hebrides, now stationed at Glasgow.

FOREIGN.

P. DeCazes.....	Paris.
J. E. Klotz.....	Hamburg.
E. Von Koerber.....	Switzerland.
W. C. Krieger.....	Iceland.

As early as possible after my arrival I turned my attention to the means at hand for inducing emigrants of the right class to become settlers in the Dominion. These were,—

- (a) The circulation of suitable books and pamphlets.
- (b) Advertisement of the amount of assistance afforded, demand for labour, lands for sale, routes, &c.
- (c) Lectures delivered by the Agents in agricultural districts.

Under the first head I found that it was advisable to have the pamphlets renewed, those in possession of the Office having been sufficiently used.

The previous pamphlets had been written chiefly with a view to influence the emigration of agricultural labourers, and the industrial classes generally. The chief emigration pamphlet (yellow) and the information, &c., pamphlet (white) I was unable to use, owing to the rates of passage being altered, and the Ontario bonus advertised in them being discontinued. Neither of these pamphlets had been circulated, I found, by the agents of the Allan Line, owing to the mention of the low £2 5s. rate.

Having received instructions to discourage as much as possible during the present industrial and commercial depression the emigration of artisans and mechanics, and confine my operations to the small capitalist, the tenant farmer and agricultural labourer classes, I drew up and circulated a fly-sheet containing practical advice for Emigrants of the latter class. I have had prepared also a technical pamphlet suitable for issue to agriculturists generally, and a hand book of Canada, giving the fullest and most recent information about the country and its resources, I could gather. These two proposed publications have been submitted to the Department for approval.

At the time of the cattle show in London during the present winter, I printed and circulated a special pamphlet on Stock Raising and the breeding of Pedigree Cattle in Canada.

The success of this publication, and the large number of enquiries I have since received from men of capital on the subject, caused me to re-issue it in a revised and extended form to the Agents, for general circulation in their districts.

I find great ignorance about the Dominion prevailing among the tenant-farmer class, and a good hand-book of Canada is an absolute necessity.

The New Zealand and Australian Governments are in this respect before us, as they both supply an excellent manual, addressed particularly to the intelligent and moneyed classes, which is sold at about half the price per copy it cost to produce.

On inquiry I find that the issue of these manuals has been attended with the best results, in inducing a number of young men with moderate capital to emigrate, and that both have met with a very large sale.

In view of our supplying a similar hand-book of the Dominion, I have made favorable arrangement with Messrs. W. H. Smith & Sons, who have book stalls on most of the railway lines in Great Britain, to keep a supply of our publications, and retail them to their customers.

I have also made an arrangement by which the same firm will distribute our pamphlets to applicants at any of their book stalls throughout the lines of railway on which they are placed. I consider this a very effective method of supplementing the diffusion of information about Canada from this office, and by our special Agents. On the matter of pamphlets and fly sheets, it would be better that these should be printed from time to time, in small editions, with the latest and freshest information.

I am now distributing Maps of the Dominion, with great advantage, to training schools in agricultural and other districts; few such schools, up to the present time, have possessed a map of Canada, distinct from that of the United States.

The past three or four years have, owing to the bad season and low average price of corn, been very disastrous to the English and Scotch tenant-farmers, and there never existed a better time for us to make it clear to this class, that in an English colony like Canada, they can invest their capital to the best advantage, and secure the freehold of their farms for the price they pay here as an annual rent.

I believe it only requires the right means to be taken, to secure a large emigration to Canada of this most valuable class of settlers.

I have discontinued the practice of advertising largely in the country newspapers, as the results produced do not repay the cost. But I have issued some attractive posters, and arranged for their exhibition on protected boardings in the market places and at the railway stations of a number of selected country towns in districts whence tenant-farmer emigrants are most likely to come.

The disposition of the press in England is not so friendly to Canada as I should wish to see it; but I believe that the hostility displayed by certain papers when discussing the affairs and prospects of the Dominion, proceeds rather from want of proper information than from any other cause.

I have endeavoured by making the personal acquaintance of leading members of the press in London to remove some of the obstacles existing in the way of our getting fair play, and to some extent I have succeeded.

I have requested these gentlemen always to apply to this office for information on all subjects referring to Canada, and to make any use they please of our library.

I think it would be better for us to have access to the columns of a journal not professedly a Canadian organ, as it would be easy for me to obtain the insertion of quotations of articles taken from such a paper in the leading dailies and weeklies, where it might be impossible to influence their own articles.

The *Canadian News* was of little use to us, as it had a very small circulation and no influence, but having some months ago ceased to be published, it leaves us without any organ of public opinion in which we can either contradict the frequent mistatements made in the press about Canada, or advocate our own interests.

The library attached to this office, and largely used as a reading room and rendezvous for Canadians in London, is very imperfect. A number of useful books of reference are required, and I have previously suggested the expenditure of a moderate sum of money upon this service. During the past year 508 Canadians registered their names in the visitors' book kept in the library, many of them making daily use of it during their stay in London; but these figures do not represent in any

adequate degree the number of Canadians who have called here, as many of them omit to enter their names in the register.

Under the head of information given by means of lectures and meetings, I have to report that Dr. Lachlin Taylor, and Messrs. Grahame, Potts, Kingsmill, and Capper have held meetings and delivered lectures in various parts of the United Kingdom with some success.

I am of opinion that this means of securing emigrants is especially valuable in times of strikes, and disturbances on financial grounds between employer and employed, when directed to the centres of such agitation.

In the month of September last, a change of the location of this office took place. The Board of Works Department of the Imperial Government having given notice that they required the site for contemplated improvements, I at once took steps to secure suitable office accommodation.

I was offered rooms in the City, at 31 Queen Victoria street, near the Mansion House and Bank of England, a very eligible site, and, after receiving your permission, I took a lease of these premises.

I was able to effect a considerable saving in rent, as the rent of the offices on King street, Westminster, was £1,200, and that of the present is £700, making a reduction of £500 per annum.

The Provincial Agents are provided with good offices here, and the upper flat, at present unoccupied, I have had valued by a firm of city land agents, and am informed that its letting value is about £200. I am now taking the necessary steps to find a responsible tenant.

When this has been done, the net rent of the London Office will be reduced to £500 per annum.

The office of the Agency is much more conveniently situated for all purposes than when located at Westminster.

It is close to the principal banking houses; to the offices of the shipping agents, with whom we have business to transact; the offices of the trans-atlantic cable companies, and the business centres; and the importance to us of a good situation in the City is shown by the fact that I have received here a very much larger number of personal applications for information concerning the Dominion, than I got at Westminster, which was, as far as the majority of the persons with whom I have to deal are concerned, a distant part of the town. The library has also, since my removal into the City, been much more frequently made use of by authors, professional and other gentlemen, seeking information relating to the Dominion, than was the case at Westminster.

I proceed now to give you a condensed summary of the Reports, which will be found in the next Appendix, of the various Agents who have been working under my control.

The Annual Report of Mr. John Dyke, Agent at Liverpool, gives details of operations during the year. Many of the emigrants from the Eastern and Southern Counties of England, who went out in 1874-'75, have sent home encouraging reports, but the high rates of passage have prevented their friends from following.

The free passages offered by Australian Colonies have attracted many who would otherwise have gone to Canada.

Mr. Dyke expresses a very favourable opinion of the Icelanders sent out this year.

He gives the number and nationalities of all emigrants sailing from Liverpool during the year. Total decrease from last year, 23,668.

He considers that the opening up of a trade in Canadian cattle and meat will materially assist emigration, and urges that every effort should be made to foster it. A series of letters on the subject written by him, and published in the leading English and Canadian papers, has led to good results. The Imperial authorities are enquiring into the suitability of Canadian horses for the British army. Leading horse dealers in London are also investing in these animals. He urges the importance of Canadian farmers improving the breed as much as possible, and points out

other branches of trade which may be profitably developed, viz: eggs, hay, condensed milk, and wooden ware. All articles should have the address, "Canada," legibly inscribed thereon. He thinks a list of farms for sale in Canada is much needed, and that if agricultural labourers are required in Canada the rates of passage money must be reduced.

Mr. George Kingsmill, travelling Agent, reports proceedings in the Midland Counties, in connection with the Lincoln Labour League. Emigration comparatively small, owing to depression in Canada, but a large outflow may be expected when the demand increases. Has prepared a book on Canada for distribution among farmers and others. Reports a more extended knowledge of Canada, and urges the importance of the word "Canada" being distinctly marked on all packages from thence.

Mr. Thomas Potts, travelling Agent, refers to his monthly reports. Looks for an improvement in emigration next year.

The rise in steamship rates, and the suspension of Ontario bonus, stopped the emigration of large numbers to Canada.

Complains that pamphlets given to steamship agents are not properly distributed; has himself distributed six to eight thousand pamphlets.

The portation of Canadian cattle is having a very good effect. Could have sent out many agricultural labourers at same rates as of previous years.

Mr. Thomas Grahame, Agent at Carlisle, urges the desirability of programme for year, as regards amount of assistance, &c., being made known the previous autumn.

Advocates list of farms, &c., for sale in Canada; to be published annually.

Suggests desirability of some scheme for settling parties from same district in communities.

Refers to the subject of tenant farmers, and states that the depression of trade in Canada has deterred emigration from his district.

Mr. Samuel Capper—Lecturer—has received and replied to 1,600 letters, and nearly 4,000 personal applications. Has confined his efforts to farmers, farm labourers, and female domestic servants. Has sent several farmers to visit Manitoba, and families of farmers to Missisquoi, in the Province of Quebec. All doing well. He granted no assistance in these cases. The farm servants and domestics sent out also doing well. Has delivered upwards of 200 lectures, and distributed nearly 30,000 publications and pamphlets. In several instances has introduced capital into the Dominion. New Zealand has offered greater inducements to poor emigrants, by free passage.

Mr. H. J. Larkin, Agent in Dublin, reports proceedings in Dublin during the past year. Refers to inducements offered by Australia and New Zealand. Suggests that "Land Registers" in sheets, giving particulars of farms and properties for sale in Canada, should be furnished to agents.

Mr. Charles Foy, Agent at Belfast, reports that New Zealand has absorbed most of the emigration during 1876,—estimated cost per adult, £20. Recommends the allotment of a township or two of good land for North of Ireland settlers. Refers to general failure of crops, and disease in potatoes, and much local distress. The importation of Canadian cattle and beef is having a good effect, and he strongly recommends Belfast as a good market for cattle and horses. Suggests the exhibition, at his office, of a few samples of Canadian manufactures—especially axes.

Mr. J. Murphy, Agent at Limerick, has distributed a large number of circulars and pamphlets. Reports that farmers and clergymen are opposed to further emigration as tending to make labour dear, and that it is impossible to induce small farmers to emigrate.

Mr. Angus Nicholson, Agent at Glasgow, reports operations in Scotland during the year. Fewer emigrants sent out than in the previous four years, owing to the special inducements offered by New Zealand and Australia. Has been in communication with landed proprietors in the Highlands who are inclined to assist emigration. Sends copies of letters from officials in Province of Quebec, approving class of emigrants sent there from Highlands.

Mr. Paul de Cazes, Agent in Paris, reports that French emigration during the year has been insignificant for reasons given in his last year's report. The continued crisis in Canada has prevented him from urging the emigration of parties destitute of procuring resources. Strongly recommends that Canada should be adequately represented at the French Exhibition of 1878, and anticipates that active emigration will be resumed as soon as times improve.

The Report of Mr. Gustave Bossange at Paris refers to his operations in France during the year. Owing to the crisis in Canada, he has judged it best to confine himself principally to the distribution of pamphlets, and wait for better times. Details number and classification of emigrants during the year; the amount of money taken out by them to Canada, he states, in round figures, aggregates \$20,000.

Madame Elise Von Koerber, Agent for female emigration, from Switzerland, refers to her Report of March last, and explains her action in Canada and Switzerland, with regard to Swiss scheme of emigration.

Mr. J. E. Klotz, Agent at Hamburg, alludes to Mennonite emigration to Manitoba, to the number of families and emigrants, to the assistance extended, &c., and amount of money taken by them to Canada. German emigration, he says, is decreasing, owing to depression of trade and stringent prohibitory laws. Urges that Canada must give more liberal assistance to compete with other countries.

Mr. W. C. Krieger, Icelandic Agent, gives details of his proceedings in Iceland and the despatch of 1,200 emigrants under his personal supervision. Subsequently proceeded to Ottawa and thence to Manitoba, and satisfied himself of their good condition. Returned to England and proceeded again to Iceland, and arranged for next season's work. Fears that the reports of the prevalence of small pox among the Icelanders in Manitoba will seriously affect future emigration from Iceland.

You will observe by a return of the Board of Trade given in the Appendix that there has been a considerable falling off in the emigration to Canada during the year; the total aggregate is put down at 12,323, being 4,816 or 28 per cent. less than in 1875. This falling off is, as I have mentioned elsewhere, attributable to the effect of the severe commercial depression prevailing in Canada, and to the stoppage of the Ontario bonus. It is a fact worthy of note, however, that the United States have suffered a similar diminution during the year as compared with 1875, namely, 28½ per cent.

Although the emigration has been less, the work at this office has been considerably augmented.

The correspondence is daily increasing, and our registers show that 4,087 letters have been received, and 4,673 manuscript letters have been despatched during the course of the year.

Personal applications at the office are now becoming numerous, and my own time is much occupied in affording verbal information to enquirers.

The Agents throughout the United Kingdom, and those on the Continent, have been kept well supplied with the printed matter I had at command, and the agents of the steamship lines have also been furnished with pamphlets and posters, according to their requirements.

The details of the expenditure of the London office may be thus briefly summarised:—

Salaries, Rent, Taxes, Postages, Printing, Stationery, Advertising, Telegrams and Cable Messages, Travelling Expenses, Publications, Furniture and Removal, Freights and Carriage, Housekeeping, Cabs and Railway Fares, Contingencies, Warrant Passages, Commission to Steamship Agents, Salaries and Expenses of Travelling Agents.

Having said this much on matters more immediately relating to the routine and management of the London Office, I propose to review our emigration operations of the past year and to allude briefly to our prospects in the future, both as regards the work of our Agencies in Great Britain and on the Continent of Europe.

ENGLISH EMIGRATION.

There has been a comparative cessation of the emigration of agricultural labourers to Canada, owing to an increase in the ocean passage rates, and the withdrawal of the Ontario bonus.

At any time, however, we could, with the assistance of the Labour Unions, by adopting a liberal policy, get large numbers of emigrants of this class. Although the wages of the labourers on farms in England have been considerably increased of late years, still the price of various commodities has, it must be remembered, risen also. This is especially the case with meat, an article of diet rarely found on the table of the agricultural labourer. The depressed state of trade in the Dominion made the emigration of mechanics and artisans undesirable, and, as before remarked, I altogether discouraged such emigration for the time being.

Female domestic servants, however, for whom there is always a large demand in Canada, I have taken steps to reach from time to time; but it is quite necessary to offer them a free passage out, and assure them of the prospect of their being at once comfortably settled, for in England the demand is already greater than the supply, and they find that the wages they get here are as large as those current in Canada, though probably in Canada they have greater independence and more consideration shown them.

As I have previously stated, the class to which I am now giving my attention, that of farmers with capital, is at present and must long remain the most useful class from which to draw emigrants, and I am happy to be able to report a very generally expressed desire on the part of the farmers to be well informed about the Dominion and its agricultural prospects. Information is particularly sought by fathers of families having sons they cannot settle on farms in England, but whose means would enable them to give their children a very good start in life in Canada. In connection with this matter it is satisfactory to me to be able to state, that as the result of information received from this office, and of personal interviews with me, several gentlemen of capital and good social positions have announced their intention of settling in Canada this spring. I propose specially to recommend them to your good offices, feeling sure that they will receive at the hands of the Department every encouragement and assistance.

WELSH EMIGRATION.

I do not think it advisable, as the Ontario bonus has ceased to be given, and a free passage is offered by the New Zealand Government, to go to much expense in promoting Welsh Emigration. I continue to use the Welsh pamphlets we now have, and our special Agents deliver lectures in various country towns in Wales, so as to place Canada plainly before the Welsh agricultural population, and enable us to take advantage hereafter of any liberal policy the Government may think proper to adopt.

I have also distributed a few hundred posters, in Welsh, throughout the districts our Agents have been canvassing. Heretofore, Welsh emigration has been principally to the United States. Latterly, to a small extent, it has been directed to Queensland, through the efforts of local agents who have been employed and well supported by that Government. Besides the farm labourers, there are in Wales two classes from which very useful emigrants may be drawn, viz: the small tenant farmers, and the colliers and quarrymen. At the present time, the former of these classes is feeling very severely the effect of the late successive bad seasons, together with high rentals. The latter have for some months past been frequently on strike against the several reductions found necessary by mine owners, from the abnormally high rates paid three years ago. As many of these men were picked from the various agricultural unions before they became miners, three or four years ago, they would form settlers of a useful class.

ORGANIZATIONS.

In connection with the subject of English and Welsh emigration, I may briefly mention that there were some thirteen or fourteen organizations of agricultural labourers in England and Wales, but lately several of the smaller ones have become extinct, or have merged into the larger ones. With the exception of four, however, these unions are only of local importance.

1. The "National Agricultural Labourers' Union" has its headquarters at Leamington, Warwickshire. Its members have varied, it having had at one period of its existence over 70,000 members, which afterwards fell off to about 20,000 on account of disagreements between its officers. It may now be estimated to number about 40,000 members. They are men chiefly of the eastern, midland and southern counties. Mr. Joseph Arch is the President, and Mr. Robert Collier has succeeded Mr. Henry Taylor as Secretary.

2. The "National Farm Labourers' Land Union" is an offshoot of the "National." It has its headquarters also at Leamington. The Reverend Mr. Lake is Secretary, and Mr. E. J. M. Vincent, Editor of the *Union Chronicle*, Treasurer. It may number from three to four hundred. It is altogether opposed to emigration.

3. The "Lincoln Labour League," though strongest in Lincolnshire, has scattered branches in Norfolk, Suffolk, Wiltshire, Yorkshire and Nottinghamshire. Its headquarters are at Boston, in Lincolnshire. Like the "National," this Union has had great fluctuations in its numbers from disputes. At one time it was said to number 20,000, but at present it has not more than five or six thousand paid-up members. The chief officer is Mr. Wm. Banks, Secretary.

4. The "Kent and Sussex Labourers' Union" is located exclusively in those counties, with the headquarters at Maidstone. This was at one time a flourishing local union, but now barely maintains its ground, as the "National Union" having recently established a footing in these counties, gradually encroaches upon it.

5. The "Peterborough District Union" comes next in point of numbers, and comprises between two and three thousand members. Mr. Benjamin Taylor, Town Councillor, is the chief officer.

I may add that the state of feeling among the labourers is much changed from what it was when these unions came into existence. Wages are higher, work plentiful, and the men fairly well satisfied with their condition.

FOREIGN EMIGRATION.

Norway and Sweden.

There is little or no prospect of any emigration from the Scandinavian kingdoms. In consequence of the large exodus to the Western States during the past twenty years, the labour market is depleted; the rates of wages have greatly increased, and the return of large numbers of emigrants to their native countries, and the depressed state of trade in the United States, renders these classes disinclined to emigrate.

Germany.

In Germany there is on the other hand a general desire on the part of the agricultural population to seek their fortunes abroad.

The authorities throw every possible obstacle in the way of this, but they are unable to stem the tide of emigration. Emigrants are constantly leaving the Fatherland, for America and Canada, *via* England, in spite of the refusal of the German Government to permit the appointment of agents at inland places for the sale of passage tickets by steamship lines, which do not run directly between German and transatlantic ports. Lord Odo Russell, our Ambassador at the Court of Berlin, has, I am informed, on several occasions brought this unfair regulation under the notice of the German Government, but, up to the present time, without result.

The Australian Colonies have several agents in Germany, and they despatch ships from German ports to Australia direct, at the same time granting entirely free passages and other advantages. By shipping the emigrants in this way, they get over the difficulty with the German Government which we encounter through being compelled to adopt the course of transshipping German emigrants bound to Canada, at Hull.

There ought to be a possibility of overcoming this difficulty, by means of co-operation with lines of steamships sailing directly from German ports to America.

Austria and the Tyrol, &c.

Austria, the Tyrol, Bavaria, Bohemia, Styria, and Northern Italy are available fields for emigration. A well guaranteed scheme of colonization would find favour in those countries; but, in order to have the best conditions of success, it ought to be negotiated by the Canadian Government, through the Foreign Office, with the respective Governments of those countries, in lieu of employing travelling Agents, whose statements are received with much suspicion, and who, unless they are men known in the country, and backed by State authority and protection, cannot possibly hope to influence emigration on any considerable scale.

France.

From France there is little hope of any emigration at present. The French Government is thoroughly opposed to emigration, and the laws are so strictly prescriptive that our Agents would never be permitted to canvass freely for emigrants.

If, however, Mr. Bossange was authorized to offer passages at a reduced rate to selected agricultural emigrants, a different and better state of things in regard to French emigration might result.

It appears to me that the best way in which we can bring Canada before the French people, is to show them the benefit which would result from promoting a direct trade with her. It would be well to ascertain the character of the trade between Canada and France, the nature of the products which might with great advantage be reciprocally interchanged, and of the extent of the trade now done. If these statistics were brought publicly before the French people in a practical shape, they would probably be of mutual benefit to both countries. Emigration from Alsace and Lorraine is at an end; the inhabitants of these Provinces, who after the Franco-German war were desirous of emigrating, have all departed long ago, and there exists now no inclination to emigrate among those remaining.

Iceland.

Our Agents, Messrs. Krieger and Jonassen, were steadily at work during the winter in securing emigration.

On the 9th of July, the first party of Icelanders, accompanied by Mr. Jonassen, were landed at Granton, in Scotland, and embarked at Glasgow on the 11th of July. It consisted of 564 adults, 133 children, and 55 infants; altogether, 752 souls.

Another group consisting of
 282 adults,
 83 children,
 26 Infants.

In all, 391 souls arrived at Granton on the 17th of July and sailed from Glasgow on the 19th of the same month for Canada.

The Emigrants were bound for the new Icelandic Colony of Gimli, on the shores of lake Winnipeg, and for New Iceland, in Nova Scotia.

I despatched one of our special Agents, Mr. Dyke, to meet these people and attend to their wants.

He accompanied them from Granton to Glasgow, and remained with them until they embarked for Canada.

They were a fine healthy body of people and appeared to be particularly well satisfied with the treatment they had received at our hands, and the pains we took to ensure their comfort. Not a complaint of any kind was made to me, and I had not a single casualty to record. The arrangements made by Messrs. Allan, of Glasgow, for their transport were of so satisfactory a nature, that not a single box or piece of luggage went astray. I found a large number of these Emigrants were desirous of proceeding to Nova Scotia to join friends already settled there. With some difficulty the agents after explaining the impossibility of their procuring work in any numbers, dissuaded a considerable portion of them from proceeding thither.

A small party consisting of 26 souls subsequently went through on the 15th of August, and their transport was conducted with equal success.

The visit of our special Agent, Mr. Krieger, to Iceland, was the means of giving this immigration a better form—previously only a small number of Icelanders had left that country, and these with doubtful results. About 1.7 per cent. of the entire population has already emigrated.

The emigrants for next year seem likely to come from all parts of the Island. I have made arrangements with Messrs. J. & A. Allan, of Glasgow, to carry 600 Icelanders to Quebec at £6. 17s. 0d. per head during 1877, the Canadian Government giving the same assistance as was paid this year.

These prices are rather higher than those of 1876, but Messrs. Allan have to pay more for the coasting portion of the service.

There is every reason to be satisfied with the arrangements made by the Allan Line for the transport of the Icelanders to Canada, and they will again, as they did last year, employ agents to buy the surplus stock of the emigrants, an important advantage to the Icelanders.

The Icelanders are well disposed to emigrate to Canada, and with judicious encouragement they will undoubtedly form a very useful class of emigrants, and the success of our future operations in Iceland, will depend entirely upon the reports the emigrants of this year send home to their friends. If these are favourable, we may be prepared for an emigration *en masse*, but if on the contrary, they are unfavourable, then the emigration will cease altogether, and no efforts of our Agents would be likely to ensure its renewal.

South Russia.

The Mennonites, who have proved themselves useful settlers in Manitoba, still continue to present themselves; 771 adults, 503 children, and 99 infants—equal to 1,373 souls—went through to Manitoba this year, and we may anticipate a small but regular stream of Mennonite emigration from South Russia for some years to come.

Swiss Emigration.

Having received a notification that an important conference was about to meet for the purpose of considering “in extenso” the subject of Swiss emigration, at Berne, on the 4th October last, I deemed it advisable in the interests of the Dominion to ask your permission to attend.

Having obtained your consent, I left London for Berne, where I arrived on the day preceding the first meeting of the conference. On the afternoon of the 4th, through the kind offices of Madame Von Koeber, I obtained an audience of the President of the Swiss Republic, Mr. Wehlti. He informed me that he took great personal interest in Canada, and considered it by far the best field for the emigration of his countrymen. He further informed me that his Government would take no part either in encouraging or discouraging emigration, but they deemed it their

duty to exercise a proper surveillance over it, and to provide against the chance of Swiss subjects being deceived and imposed upon. With the welfare of his people in view, Mr. Wehlti said he should be disposed to look favourably on any fair scheme of colonization proposed by our Government. He referred to the statute about to be passed by the Swiss Parliament, dealing very severely with shipping agents who had plundered and victimized the Swiss people. Mr. Wehlti stated that the Swiss emigration to South America had been brought about by false representations of interested agents. The result of that emigration was disastrous, but he thought there was a wide field open for a substantial and trustworthy offer.

The President expressed his willingness to advocate the claims of Canada in any way he could legitimately, provided he was convinced of the *bona fides* of the Agents we sent.

I further informed the President, that I should report his opinion to the head of my Department, and expressed a hope that the two Governments would arrive at an understanding upon the subject, which would be mutually satisfactory and advantageous.

I was present at a meeting held by Madame Von Koerber, and was introduced by her to some of the leading writers and members of the Swiss Republic.

Here I met a number of ladies, delegates from the committees which are established in all the principal towns of Switzerland, and heard the views they expressed on behalf of the committees they represented, on the question of the emigration of women and children to Canada.

They requested me to propose to my Government the organization of similar committees of ladies in the chief cities of Canada, for the reception of the Swiss women and children on their arrival.

This was insisted upon as a necessity by the delegates, and recognizing, myself, the importance of the point, I directed Madame Von Koerber to proceed to Canada with a view to carry out this object.

As the result of this interview, I discovered that Canada was but little known amongst them. Evidently very little information has been circulated in Switzerland concerning the Dominion. No maps have been distributed, and very few advertisements have been inserted in their papers. I found that the United States and South America had taken the lead in emigration matters, but the bad accounts received from the Brazils and the Argentine Republic, and the gross misrepresentations of the Agents, have put an end to the chances of South America obtaining emigrants from Switzerland in the future.

After visiting our Agents at Bâle, with whom I had several conversations on the subject, I have arrived at the following conclusions with regard to Swiss emigration to Canada, viz. :—

That it is indispensable to the successful conduct of emigration thence, that there should be a line of steamers sailing directly from Havre or Antwerp to Quebec, a cheaper through rate by direct aid from the Government, a proper system of advertising, and the circulation of suitable information written in French and German. If possible, a more important requisite, is a better system in colonizing the Swiss settlers on our side. It is also most important to impress in some marked manner upon Continental nations, the distinction between Canada and the United States. At present there is great confusion on this point.

We should invite some of their leading writers to visit Canada, to judge for themselves of the prospects and resources of the country.

We should also organize a party of colonists to go out under the direction of one of their own leaders.

I may point out that Switzerland differs from adjacent countries, in that we are free to canvass and advertise for emigrants there. The law only requires from our Agents a pecuniary guarantee or security for their good faith. Land near the cities has of late years greatly increased in value. In the vicinity of large towns, too, it is getting more and more absorbed by the wealthy classes for private villa residences. The effect of this is to make it harder every year for the Swiss farmer to get his

living. The commercial classes are suffering severely from American competition in their watch and clock making industries, and thousands of thrifty working people, of whom some fifteen to twenty thousand are women, are thus thrown out of employment. The wealthier classes are opposed to emigration, for the simple reason that it tends to raise the price they have to pay for home labour. The people, however, are willing to emigrate on favourable terms; the females, of whom a large number could probably be obtained of the above mentioned class, would make excellent domestic servants generally, and the small farmers would form a very useful class of settlers likewise.

Towards securing the former of these classes Madame Von Koeber is now directing her attention, and steps are being taken to reach the latter.

I am of opinion that it would be well to make Switzerland the centre of our operations in mid Europe. It is favourably situated for commanding France, Berne, Wurtemberg, Bavaria, the Tyrol, the Provinces of Austria as far south as Trieste, and for aiding if not influencing emigration from Northern Italy.

Manitoba.

It is probable in each succeeding season for years to come, emigrants in increasing numbers will proceed to the prairie lands of Manitoba, attracted by the extraordinarily productive powers of the soil. A report which has recently been forwarded to me contains some valuable information, which I propose to lay before intending settlers. The construction at a future date of the proposed Canadian Pacific Railway will remove the inconvenience of transit at present existing, and emigrants will, no doubt, flock into the Province in large numbers. I have already had a number of valuable applications from men of means, who are likely at an early day to become settlers in that Province.

Tenant farmers are likely to be attracted by the fact that cattle can be reared in Manitoba at less cost than they can rear them in the eastern portion of Canada, arising from the inexhaustible supply of hay. Last year the demand for labour during harvest was, I find, considerable, and farm labourers earned \$25 a month and board and lodging.

For the tenant farmer of small means I consider there is at present a favourable opening in Manitoba. I have recently made a display at these offices of the agricultural and mineral products of that Province. I sent letters to the editors of the leading daily papers and such weekly papers as are wholly or in part the organs of agricultural interests, requesting them to send representatives to this office to see for themselves the quality of the roots, cereals, hops and other products of the Province. In every instance my invitation was promptly accepted, and interesting notices of the capabilities of Manitoba as a food-producing country appeared in all these several journals.

The Meat Trade.

It is hardly possible to exaggerate the growing importance of the trade in cattle and meat imported from Canada, whether we consider the interests of the Canadian farmer or the English consumer.

The English press is keenly alive to this fact, and by constantly reporting the arrivals of American and Canadian meat, giving details of the prices realized, and generally encouraging the importer, is doing most serviceable work for us.

There is no prejudice on the part of the public here against Canadian meat, for it reaches the market in whole sides and in good condition.

Australian meat preserved in cans, on the other hand, has always provoked much opposition, and the trade in it is fast declining. Not only in the ports of entry, but in all the large towns of the kingdom, is this imported meat sold, and everywhere is it eagerly sought after; and the demand is, without exaggeration, a thousand times greater than the supply.

Large quantities of Canadian turkeys have reached Leadenhall Market this winter, equalling in freshness those received from France or bred in this country and excelling them in quality.

That the trade in imported meat will assume gigantic proportions in the future, is shewn by the following figures.

The trade began in Glasgow three years ago, when a firm of salesmen in that city imported, as an experiment, a few head of fat cattle. Finding that the animals stood the voyage well and without in any way deteriorating, the same firm extended its operations, exporting each month cattle from America in large numbers.

A method of successfully preserving meat by means of refrigeration having subsequently been discovered, the trade in live cattle has to a great extent given way to this more profitable method of importing meat.

In the six months from the 30th June last, 6,388 carcasses have been brought from New York to the Clyde alone.

I have been unable to obtain any statistics from other ports, but the trade this year in American beef has been very large, and Canada has supplied the mother country with a considerable amount of prime meat.

In a rough way it is estimated that 1,500,000 pounds of meat from America and Canada are of late, weekly offered in the English markets. The disposition of the public is remarkably favourable. Her Majesty the Queen, ever taking a kindly interest in the social and economic problems of the day, has been graciously pleased to send a letter to one of the principal importers, expressing her satisfaction with the condition and flavour of the beef, a sample joint of which had been sent her. The Duke of Sutherland, the Lord Mayor of London, and many other influential persons have likewise spoken highly of the quality of the meat, and are doing their best to encourage its importation and distribution throughout the country.

It is hardly necessary for me to point out that this trade must become in time one of the first importance and magnitude, and that in Great Britain there exists for Canadian meat and poultry a market which is practically unlimited.

The weekly importations of our meat or fat oxen bring before producers here, in the most telling manner, the fact that Canadian farmers can send to market meat that will sell side by side with the best Scotch beef, with good profit to themselves, and at 25 per cent. less cost to the English consumer.

This fact when generally known, will certainly have an important effect upon our tenant farmer emigration in the future.

ACTIVITY OF RIVAL COLONIES IN THE EMIGRATION MARKET.

The Australian Colonies continue to show great activity in the work of securing emigrants. First among them stands Queensland, which employs a number of agents and lecturers, who, when addressing audiences in the agricultural districts, constantly deprecate emigration to Canada, advocating, of course, their own Colony as a farmer's paradise.

South Australia has likewise been very energetic, and its agents in the South of England, Ireland, Scotland, North Germany and the Austrian Tyrol have met with fair success.

Western Australia has only recently entered the field as a competitor with other colonies for its share of emigrants; its operations have hitherto been conducted on a small scale, but I am advised that a very large sum of money has recently been voted by the Parliament of that Colony for this service.

New Zealand has spared no pains nor expense to secure a large emigration of farm labourers, navvies, mechanics, gardeners and domestic servants.

All the above-mentioned colonies are now spending money freely in extensively advertising in the newspapers, and by means of large posters; they likewise distributed gratuitously many thousands of pamphlets, besides selling excellent illustrated handbooks of their respective territories at a merely nominal price. They pay their staff here very handsomely, allow liberal commissions to steamship agents, and

employ lecturers and special agents in disseminating their information. But the great feature of their system is that they grant a free passage, and in some instances a free kit.

If we are to hold our own with these rival bidders for the emigration of the tenant farmer and labourer, we must proceed *pari passu* with them in the market, and especially in the matter of a supply of proper publications for distribution. We must have handbooks of the Dominion, as comprehensive, as accurate in the information they contain, and as attractive in form as the admirable manuals issued by the Governments of New Zealand and the Australian Colonies, of which many thousands have been circulated throughout the United Kingdom.

We have, however, one strong point in our favour in entering the field with them, because the classes we both address have a natural repugnance to going to a country the antipodes of their own, from which they can hardly in a long lifetime, hope to return to visit their friends or spots dear to them. In Canada, however, they are practically within a few days of the Old Country, and can reach their friends at home, if they desire to do so, at a very small outlay of time and money.

Under the above heads, I have endeavoured to give in detail the principal events of the past year in connection with my administration of this agency, and to discuss the more prominent points of our emigration policy in the future.

I trust that my action in conducting the affairs of this agency, and the opinions I have ventured to express, will meet with your entire approval.

I have the honour to be, Sir
Your obedient Servant

FRED. J. DORE,
Canadian Government Agent.

The Honourable
The Minister of Agriculture,
Ottawa, Canada

IMPERIAL BOARD OF TRADE RETURNS.

EMIGRATION.

RETURN of Emigration from the principal Ports in the United Kingdom at which there are Government Emigration Officers, for the Year ended 31st December, 1876.

Port of Departure.	United States.	Br'h North America.	Australian Colonies.	All other Places.	Total.
Liverpool	53,327	9,156	981	2,982	66,446
London	2,983	170	16,134	4,024	23,311
Plymouth.....		37	11,062	1,107	12,206
Total England	56,310	9,363	28,177	8,113	
Glasgow and Greenock	6,539	2,170	3,911	147	12,767
(Being the total from Scotland.)					
Cork.....	8,891	114	647		9,652
Londonderry.....	1,936	678			2,614
Total Ireland	10,827	792	647		
Grand Total for United Kingdom	73,676	12,325	32,735	8,260	126,996

TABLE showing the Origin of the Emigrants comprised in the above Emigration Return.

Destination.	English.	Scotch.	Irish.	Foreigners.	Not distinguished.	Total.
United States	33,613	3,504	15,803	19,443	1,313	73,676
British North America...	6,227	1,048	2,058	2,941	51	12,425
Australian Colonies.....	20,135	4,548	7,063	971	18	32,735
All other places.....	5,171	480	311	541	1,757	8,260
Total	65,146	9,580	25,235	23,896	3,139	127,096

STATEMENT of Assisted Passages granted by the London Agency during the year ending December 31st, 1876.

Months.	@ £2 5s. rate.		@ £3 15s. rate.		@ £4 5s. rate.		@ £4 15s. rate.		Total.	
	Souls.	Adults.	Souls.	Adults.	Souls.	Adults.	Souls.	Adults.	Souls.	Adults.
January.....	9	8		62½	67				76	70½
February.....	15	13		79	85				100	92
March.....	33	24		161½	172				205	186½
April.....	159	131½	*54	118½	132			165	538	469
May.....	167	130	5	1	1				468	400
June.....	109	97						179	266	203
July.....	89	77½	138	126½				295	455	400½
August.....	63	58						346	430	360½
September.....	58	49½						303	552	401½
October.....	64	53						489	227	195½
November.....	18	13						169	225	200½
December.....	16	10½						161	141	107½
Total.....	800	665	111	83½	457		2,108	1,777	3,476	2,948

	Souls.	Adults.
From Mr. Middlemore's School at Birmingham.	1,169	1,035
From Miss Macpherson's Home.	4,645	3,983
Grand Total.....	4,437	3,801
Particulars of Sailing... {	207	181
By the Allans' Lines.....	1	1
do Dominion Line.....		
do Anchor Line.....		
Total.....	4,645	3,983

* From Mr. Middlemore's School at Birmingham.
 † From Miss Macpherson's Home.

Special Emigration from Iceland.....
 Grand Total.....
 Particulars of Sailing... {
 By the Allans' Lines.....
 do Dominion Line.....
 do Anchor Line.....

F. J. DORE,
 Immigration Agent.

STATEMENT of Amounts paid to Steamship Companies for Government assistance for the year 1876.

	£	s.	d.
To Messrs. J. & A. Allan, Glasgow :			
For assistance and commission on Icelanders.....	1,398	7	8
For assistance on general emigration.....	128	15	0
	<hr/>		
Total.....	£1,527	2	8
To Messrs. Allan Bros. & Co., Liverpool :			
For assistance on general emigration.....	769	1	9
	<hr/>		
Total.....	£2,296	4	5

DETAILS of the Expenditure of the London Office, (summarised).

	£	s.	d.
Salaries.....	1,461	5	1
Rent and Taxes.....	1,135	17	10
Postages	118	16	8
Printing and Stationery.....	364	7	1
Advertising.....	232	12	9
Telegrams and Cable Messages.....	32	11	2
Travelling expenses.....	35	0	0
Literature supplied to Library.....	20	8	2
Furniture and removal account.....	191	10	0
Freight and Carriage account.....	56	11	1
Housekeeping account.....	94	15	5
Railway and Omnibus fares.....	21	0	0
General contingencies.....	280	18	3
Petty expenses.....	75	2	0
	<hr/>		
	£4,120	15	7
Warrant passages, including payments made on account of disputed claims, 1874 and 1875.....	5,493	18	11
Special Bonus, Commissions paid to Steamship Agents..	788	19	6
Foreign Commissions.....	463	15	11
Salaries of Travelling and Special Emigration Agents.....	£4,871	13	11
Per diem allowances.....	3,693	8	0
Incidental expenses.....	860	12	5
	<hr/>		
	9,425	14	4
	<hr/>		
	£20,293	4	3

F. J. DORE,

Immigration Agent.

No. 38.

REPORTS OF THE EUROPEAN AGENTS

CANADA BUILDINGS,
31 QUEEN VICTORIA STREET,
LONDON, E.C., 25th January, 1877.

SIR,—I have the honour to transmit to you herewith, the annual reports of the following Immigration Agents in Great Britain and on the Continent, for the year ended December 31st, 1876.

Mr. John Dyke, Liverpool.
 “ A. G. Nicholson, Glasgow.
 “ G. R. Kingsmill,
 “ Thomas Potts,
 “ Thomas Graham, } England.
 “ Samuel Capper,
 “ H. J. Larkin, Dublin.
 “ Charles Foy, Belfast.
 “ J. Murphy, Limerick.
 “ T. DeCazes, Paris.
 “ G. Bossange, Paris.
 “ W. C. Krieger, Iceland.
 Mdm. E. Von Koerber, Switzerland.

I have the honour to be, Sir,
Your obedient servant,

F. J. DORE,
Canadian Emigration Agent.

To the Honourable
The Minister of Agriculture,
Ottawa.

REPORT OF LIVERPOOL AGENT.

(JOHN DYKE.)

LIVERPOOL, 31st December, 1876.

SIR,—I have the honour to submit a report of my operations during the year 1876, as follows.

In the early part of the year I was engaged as heretofore in the Agricultural districts of the eastern and southern counties of England.

The reports received in those parts from emigrants' friends who were sent to Canada in 1874 and 1875, were upon the whole encouraging, and numbers were anxious to follow, but the high rates of passage debarred many of them from proceeding.

I fear that the Australian Colonies which have been actively competing with us, offering absolutely free passages from their homes together with a ship kit, have secured many who would otherwise have gladly gone to Canada.

I was more fortunate with a few young farmers with capital, and am happy to report, that from letters I have received from them in Canada, they appear satisfied with the change they have made.

On the 6th July, I received instructions from Mr. Dore, to proceed to Scotland to assist Mr. Jonassen, in conveying a large party of Icelanders from Granton to Glasgow *en route* to Canada.

If I may be permitted an opinion, I consider, from their appearance and demeanour, they were one of the finest lots of emigrants which have ever left Europe; just the people for a new country, very simple in their habits and requirements, and remarkably abstemious. They closely resemble the best Scandinavian emigrants, and were very highly thought of while passing through Scotland. Favourable notices respecting them appeared in the leading Scotch papers.

After the safe embarkation of the Icelanders I at once proceeded, according to instructions received from your Department to Liverpool to take over this office from Mr. Haigh.

A detailed statement of the year's emigration from this port is herewith appended.

Of the emigrants destined for Canada 2,784 were cabin passengers, as compared with 2,621 in 1875, shewing an increase of 163; of these 7,920 were carried by the Montreal Ocean Steamship Company; 1115 by the Dominion Line; 24 by the Beaver Line; and 33 by the Anchor Line.

The nationalities of these emigrants as compared with 1875, were as follows:

1875.	Nationalities.	1876.	Increase.	Decrease.
51,388	English.....	39,050	.....	12,338
1,180	Scotch.....	631	.....	549
11,402	Irish.....	5,510	.....	5,892
23,807	Foreigners.....	17,982	.....	5,845
2,300	Nationalities not given.....	3,256	956	.....
90,077		66,409	956	24,624
	Deduct Increase.....			956
	Total Increase.....			23,668

Whenever it has been possible, I have met the incoming steamers from Canada to obtain information respecting the steerage passengers.

I found that the majority of the English-speaking portion intended to return to Canada: a good number of them were actually in possession of return tickets. I must not omit mentioning that a few of them appeared dissatisfied, but I noticed the same parties in a few weeks afterwards on board the outgoing steamers, glad to return to Canada, being unable to conciliate their appetites to \$3 per week wages here, and fresh meat from 20 to 25 cents per pound, after the good living they had been accustomed to in Canada.

I questioned several of the large parties of Scandinavians and Germans who returned *via* Canada from the Western States during the past summer; some of them had been there several years. They declared their intention not to return. The same applies to several French mechanics who have been in the large cities in Canada.

I have freely distributed such printed matter as I had at my disposal amongst the various Immigrant lodging houses and Steamship Agents, also a large number in the Welsh language in North Wales.

Every steamer leaving for Canada has been visited either by myself or clerk, to render assistance to emigrants requiring advice.

The fact of my being able to converse with both German and French emigrants in their respective languages, has been of great service to me, and I think of benefit to Canada. I have also found that my extensive experience in the various emigration centres of Europe has materially helped me in co-operating with the representatives of the several Steamship Companies here.

For several years past I have taken a keen interest in the importation into this country of dead meat and cattle from Canada, feeling confident that emigration to Canada will be materially increased through it; by opening up a market, and thereby increasing the demand for stock, we increase the demand for labour.

Our work is only half completed when we secure an emigrant with or without capital for Canada. A great deal depends upon his reception and subsequent settlement in the land of his adoption. I am sure we deserve the hearty co-operation from all patriotic Canadians, in making the new-comers' arrival in our country successful. It has pained me to find that the worst thing I have had to combat against in furthering the interests of Canada, in this country, has been disparaging articles clipped from the Canadian newspapers, which have been published by interested parties in this country who are particularly energetic in diffusing through the English press anything that may be detrimental to emigration to any of the British Colonies.

Three years ago I endeavoured, through the Canadian press, to attract the attention of shippers to the practicability of shipping dead meat and poultry, giving them my experience in connection with the first large shipment ever sent from America. I regret to say that Canadians did not entertain my advice, and that the very important trade already developed is almost entirely monopolized by Americans.

The steamers of the leading lines plying between New York and Liverpool and Glasgow, are fitted with refrigerators of several hundred tons capacity to convey meat, and I understand the Midland Railway Company intend erecting a large depot in Liverpool for the safe deposit of the same until it can be draughted to the various centres of population in the United Kingdom; this will prevent a glut in the market, at any time. The meat thus conveyed arrives in first class condition, and commands a ready sale; it has already had the effect of lowering the price in several of the large towns, Glasgow, Dorby, Birmingham, Newcastle, &c., &c., to the great consternation of stockraisers in this country.

It was declared sometime since by one of the leading agricultural authorities and tenant farmers' representative in the Imperial House of Commons, that owing to the great importation of foreign bread stuffs it did not pay to grow wheat in England, and that farmers must in future depend upon the production of *horn instead of corn*.

The market for cattle is now being seriously menaced, and the look out for tenant farmers with small capital in this country, previously anything but inviting, is really very serious.

In view of this situation, still greater efforts might be made to secure a number of this valuable class for Canada.

Several shipments of very valuable thorough-bred stock have been exported to the Dominion during the past year; especially worthy of notice were those for the Bow Park Company, Professor Brewer, Ontario Government College, Guelph, and Professor Fawcett, for the Nova Scotian Government.

I am glad to note that this enterprise is already bearing fruit.

Fat cattle sent over from Canada took the first prize at the Dublin Christmas Fat Cattle Show of 1876, against the whole of Ireland, and at the Highland Show at Glasgow, in July, 1875, Messrs. Bell & Sons also took four silver medals. Again, five thoroughbred short-horns bred and sent to this country by the Hon. M. H. Cochrane, realized the highest average price at any sale in Great Britain in the year 1876, viz., £203 14s. 0d. each.

I am happy to report that satisfactory results have attended the importation of Canadian horses, live fat cattle and sheep during the past year, the experience

gained in selection, treatment, &c., during transport and disposal of the same in this country, will doubtless lead to an increased trade and profits in the future.

The numbers of cattle and sheep in Great Britain have decreased during the year, horned cattle from 6,012,824 to 5,847,802, and sheep from 29,167,438 to 28,172,950; whilst the value of living animals imported from foreign countries is increasing, and was returned for the year 1876 at £7,260,303 sterling.

It is difficult to ascertain the exact numbers of Canadian stock landed here, as several shipments have been brought *via* the United States.

I herewith subjoin statement as rendered by the various steamship companies.

The first shipment of the season arrived in Liverpool in July last, consequently the returns are for the last half year only.

I regret that I am unable to obtain any account of the fresh meat and dead poultry imported from Canada.

ARRIVAL OF LIVE STOCK FROM CANADA.

	Horses.	Cattle.	Sheep.	Turkeys
LIVERPOOL.				
Dominion Line.....	272	1,070		
Beaver do	6	293	1,605	
Allan do	20	406	250	600
LONDON.				
Temperley Line.....	29	436	3	
Anchor do		60		
GLASGOW.				
Allan Line	25	432	749	600
Anchor Line.				
Other Steamers.....		70		
	352	2,767	2,607	1,200

A few shipments of horses were made from Canada to Glasgow *via* the United States in 1875, but it was not until this year that the trade assumed any importance.

I have attended several sales, and instituted enquiries, and find that upon the whole the shippers are satisfied with their venture; a few, however, have been disappointed; never having been in England before they were, of course, totally unacquainted with the requirements of the home market.

A few shipments attracted especial attention, notably those brought over by Messrs. Grand of Toronto and Oliver of Ingersol, and realized fair paying prices.

A series of letters of mine published in the leading English and Canadian papers endeavouring to foster this trade, have resulted in a very extensive correspondence between interested parties on both sides of the Atlantic and myself; several capitalists have expressed their intention to proceed to Canada to embark in this business.

The Imperial Authorities instructed an officer to inspect and report upon the quality, suitability and price of Canadian horses arriving in Liverpool, with a view of supplying the British Army. I understand they answer every requirement, all that is necessary being that *proper selections* should be made.

Of greater importance is the fact that several of the leading London horse dealers and job-masters have been extensive purchasers of matched pairs of carriage horses, and express themselves highly satisfied with their investments.

I have been at great pains in securing the publicity in the European press of all arrivals, sales, &c., of Canadian live stock; such advertisements for our country are invaluable, shewing at once the advantages of Canada as a field for stock-raising and its close proximity to the English market.

It is to be hoped that now this market for our surplus live stock has been so auspiciously opened that the Canadian farmers will be alive to their own interests and continue to improve the breed of their cattle, for it must be borne in mind that it will not pay to send anything but the best to the English market.

It appears that many of our farmers through a false sense of economy have not hitherto availed themselves of the use of the valuable entire stock introduced by their more enterprising neighbors; nothing could possibly effect a more rapid change in this respect, than the extension of the exportation of cattle to England.

I am confident that there are other branches of trade which might be profitably developed between the two countries, and with your permission I shall in future devote a portion of my time to collecting information for the Canadian Press upon the best means of purchasing such articles for the European market, and in this manner prevent if possible the disappointment which has attended so many experimental consignments of goods, in most instances to be traced to inexperience.

For instance, one trade, that of eggs, might very profitably be conducted between Canada and England; a few shipments have already been sent but they have not been packed properly, and consequently have not succeeded. To give an idea of the demand for these commodities the Board of Trade returns just issued show that in 1876 there were nearly 628 millions of eggs imported into Great Britain, valued at £2,610,231 sterling, upwards of thirteen million of dollars worth, and the trade is increasing in 1875 by £130,000 and 1876 £650,000; surely some means can be devised to direct a share of this enormous sum to Canada.

Nearly all importers of stock have had a surplus of Canadian hay upon landing in Liverpool. This has been purchased by several of the leading cart-owners, omnibus proprietors, and others, and has been pronounced by competent judges to be the best hay imported into England, and for chopping purposes to be even superior to any English obtainable in Liverpool. One firm alone is prepared to take *one thousand tons weekly*, at from \$25 per ton and upwards, according to quality. A small lot of very fine timothy, mixed with a little clover, realized \$32.50 per ton.

It would be premature to expect a large trade in hay to be immediately developed, owing to the large space it takes up on board ship, yet I hope that with the assistance of hydraulic presses and favourable freights, this will become at an early date a staple article of export, from the magnificent grass lands of the Province of Quebec.

Condensed milk might profitably be sent from Canada; also all kinds of wooden ware, such as hubs, spokes, bungs for casks, &c., &c. These may appear trifling articles, but it must be remembered that England is the great emporium of the world.

Great efforts have recently been made in Canada to establish a direct trade with Australia. I trust that manufacturers will pay attention and have their labels bear their address in full, and "*Canada*" upon everything. The importance of this I have on several occasions pointed out through the Canadian press, and regret that my request has not been more generally complied with.

I am not stating more than the truth when I write that Canada never stood more favourably before the British public than at present; also, that there never was such a plethora of unemployed capital here as at the present time. Persons with limited means through not having an opportunity to profitably employ their capital, the high

price of provisions, etc., find the difficulties and expenses of rearing a family annually increasing in this country.

Tenant farmers find themselves in a similar position, burdened not only with high rents and taxes, but with the increased cost of labour or the employment of machinery, which means of course more capital; at the same time the price of grain is decreasing and that of meat seriously threatened. Under these circumstances it is not unreasonable to expect that with renewed exertions we may be able to attract a number of the above classes of which Canada is so badly in need.

In my last report I urged the advisability of a pamphlet suitable for tenant farmers. Mr. Dore has issued a very valuable brochure which is in great request.

I have frequently been asked for descriptions of farms for sale in Canada. I much regret that at present we have nothing of the kind for circulation either issued by your Department or private individuals. If the county authorities would render us assistance by instructing their clerks to prepare lists and descriptions of farms for sale, I am confident the expense of preparing and printing the same would be amply repaid by the introduction of foreign capital in their midst.

I may call to the recollection of your Department the list of farms for sale, published under the authority of the Ontario Government, and which I need not remind you was of great service.

It is questionable if the agricultural labourers have materially benefited by the extensive agitation and emigration which recently took place; vast numbers migrated to the mining and manufacturing districts, but owing to the bad state of trade there the majority have returned, the consequence being that the farmers here were never better supplied with hands than at present.

Very much land that used to be under cultivation has been laid down in grass, the farmers having renounced cultivation for stock keeping, and are naturally having recourse to labour-saving machinery, consequently they can do with far less manual labour.

To demonstrate this the farmers are now reducing the wages from 12s. (\$3), to 11s. (\$2.75) per week, without board. If Canada requires this class it must be evident that something must be done to reduce the passage money.

Although the labourer may have gained a few shillings per week more in the last few years by agitation, the prices of necessaries have increased at a greater ratio and the numbers of bread-winners in every family have materially decreased, owing to the operation of the compulsory Education Act.

Very little, if any, pecuniary assistance can be expected from the Labourers' Unions; their leaders say if Canada wants our people let it pay for them. The Australian colonies expend five or six times more money in securing an agricultural labourer than Canada does.

In a confidential report herewith annexed, I beg to make a few remarks on continental emigration. I have experienced the antagonism presented to emigration on more than one occasion, and know for a fact that the Governments of the various countries are regularly supplied with our Reports and use them to our disadvantage.

I am confident that I am in a position here to render valuable services, as Liverpool is certainly, as far as emigration and trade with Canada is concerned, the most important place in Europe.

I am informed by competent authorities that fully forty per cent. of the vast hordes of emigrants sailing from this port purchase their tickets here, and of course in many instances determine their destination.

In view of such facts, I hope by renewed exertions to be able to show good results in the future.

I have the honour to be, Sir,

Your obedient servant,

JOHN DYKE.

APPENDIX A.

RETURN of Emigration from Liverpool for the years ending December 31st, 1875 and 1876.

Under Act.	Not under Act.	1875. Total.	Destination.	Under Act.	Not under Act.	1876. Total.	Increase.	Decrease.
66,328	6,059	72,387	United States.....	47,366	5,961	53,327	.....	19,560
11,863	513	12,376	Quebec.....	6,707	897	7,604	.....	4,772
761	924	1,685	Nova Scotia.....	264	1,232	1,496	.....	189
.....	.....	.....	New Brunswick.....	.....	5	5	.....	.....
.....	8	8	Prince Edward Island.....	.....	14	14	.....	.....
.....	.....	.....	Newfoundland.....	.....	.....	.....	.....	.....
389	543	932	Victoria.....	.....	645	645	.....	287
.....	.....	.....	New South Wales.....	.....	45	45	.....	.....
.....	.....	.....	New Zealand.....	.....	.....	.....	.....	.....
.....	.....	.....	Queensland.....	291	.....	.....	.....	.....
.....	189	189	Africa.....	.....	529	291	.....	.....
.....	139	139	China.....	.....	88	529	.....	.....
.....	414	414	East Indies.....	.....	764	88	.....	51
.....	20	20	West do.....	.....	246	764	.....	.....
.....	1,427	1,427	South America.....	.....	1,355	246	.....	.....
.....	.....	.....	.....	.....	.....	1,355	.....	72
79,841	10,236	90,077	Net Decrease.....	54,628	11,781	66,409	1,263	24,931
.....	.....	.....	.....	.....	.....	.....	.....	1,263
.....	.....	.....	.....	.....	.....	.....	.....	23,668

SUMMARY OF STEAM LINES.

	Quebec.		Halifax, N.S.		St. Johns, N.B.		Total.		Total.
	Cabin.	Steer- age.	Cabin.	Steer- age.	Cabin.	Steer- age.	Cabin.	Steer- age.	
Allan Line.....	1,682	4,799	874	565			2,556	5,364	7,920
Dominion Line.....	171	922	14	8			185	930	1,115
Beaver Line.....	24						24		24
Anchor Line.....			19	14			19	14	33
Total.....	1,877	5,721	907	587			2,784	6,308	9,092

ANNUAL REPORT OF SCOTTISH EMIGRATION AGENCY.

(MR. ANGUS NICHOLSON.)

CANADIAN GOVERNMENT EMIGRATION AGENCY, SCOTLAND,

25 ROBERTSON STREET,

GLASGOW, December 30, 1876.

SIR,—I have the honour to submit the following report of my work as Emigration Agent in Scotland during the year now closing. My mode and field of operation have been much the same as those described in my last yearly report. My agency during the season has resulted in sending a considerable number of good settlers to the Provinces of Ontario and Quebec, but not quite so many as during the four previous years, owing principally to the widely circulated newspaper reports of the depressed state of some branches of trade in Canada, and the liberal inducements offered by other colonies, such as New Zealand, Australia, &c., as well as the prosperous state of trade at home. I understand now, however, that the emigration to New Zealand has been somewhat overdone and that no more free passages to that colony are to be given for the present; but some of the Australian Provinces are as active as ever with offers of Free and Assisted Passages.

During the year I delivered a number of lectures, both in English and Gaelic, and had very good audiences at all of them, particularly at those delivered in the Gaelic language, as I am well known on both sides of the water to be well versed in that tongue and its literature—having founded and until recently edited the principal magazine and newspaper published in that language.

Since the retirement of Mr. Murdoch in July last, I have been the only Canadian Government Agent in Scotland, except the Rev. Dr. Lachlan Taylor, who delivered several addresses in different parts of the country—some of them to most distinguished and influential audiences. In addition to his other qualifications, Dr. Taylor was able, along with myself, to address the people in their mother tongue, the Gaelic—without a knowledge of which they could not in many places be approached. We delivered several lectures together in which Gaelic only was spoken.

As instructed by Mr. Dore, I have since the beginning of July made my headquarters principally at Glasgow, looking after the shipping of emigrants there, &c., in the usual way, the office there having been taken by the late Agent, Mr. Murdoch, till May next year. I also managed to keep up my connection with the Highlands by

visiting the various districts at stated periods, leaving the Glasgow office in charge of a young man as clerk, during my absence.

For some time back I have been in communication with several extensive landed proprietors in the Highlands, whose estates are suffering from over-population, and are inclined to assist emigration, if proper and satisfactory arrangements could be made for carrying it out on a large scale. From these negotiations I anticipate the most important results.

As referred to in my last Report in the fall of last year, I got leave to return to Canada in consequence of a severe family affliction. While there that leave was extended by the Department, in order to admit of my visiting and ascertaining the condition of the emigrants whom I had sent out to the Provinces of Ontario and Quebec, during the past four years. I spent considerable time on this mission, and visited a large number of my emigrants in the counties of Huron, Bruce, and Grey, Ontario, and the county of Compton and district of St. Francis, Quebec. I am happy to report that I was received by the emigrants with the greatest kindness, and found them everywhere doing well and thoroughly contented with their situation. As an evidence of their cordial feelings towards me, I may mention that I was, on the occasion of my visit, presented with a valuable testimonial, an account of which was published in the *Sherbrooke News*, February 3, 1876.

Ever since my appointment I have taken special pains to keep up communication as far as possible with all the emigrants who went out through my agency, in the different places where they were settled in Canada, and also to acquaint myself with their condition and progress from time to time. I find now that has been of great service, as it has established confidence between myself and the emigrants, and their friends at home, who are generally inclined to be suspicious of emigration agents, unless they know or have heard something of them before. I frequently receive applications from some of the most remote corners of the three kingdoms by parties who got my address from, and were specially recommended by, friends in Canada to apply to me.

I have recently addressed letters to the Mayors, and other public men of different townships and districts in which larger proportions of my emigrants were located, to ascertain from them publicly and officially their own opinion of the emigrants I had sent there, whether more of the same class was desired, and what the prospects were for the emigrants themselves. I extract the following from some of the replies:—

From Colin Noble, Esq., J. P., Postmaster of Stornoway, P. Q.

“We have several of those sent by you settled around this place, and all appear to be getting on well. They are a strong, hardy set of men, and well adapted for pioneers in the backwoods. They are used to rough fare and hardship at home, and do not complain of what they meet with here. Those from the islands of Lewis, Harris, and Uist, are particularly successful. You have sent many here from these places already, and we can take as many more as you can send us, and we think they might do as well here as elsewhere. . . . Most of the people in the five townships about here are from the island of Lewis and other parts of the Highlands of Scotland, and a more sober and better-behaved set of men cannot be found anywhere, and I consider that the money spent by the Government in inducing and assisting such men to come here is well invested. I hope you will be able to send us many more during the coming season, as we have plenty of room for them yet.’

From Alex. Ross, Esq., Postmaster of Gould, P. Q.

“We have a large number of the emigrants sent out by you from Scotland settled around here, and all appear to be doing well. All, as far as I know, without exception, have gone to the bush, and are now settled and working with a will on land that they have bought. Indeed, they seem to take to the life of colonists quite

naturally and contentedly. If all our emigration agents would take the same pains in selecting, and send more of the same class as you do, we would hear nothing of bread riots, or people lounging about the cities crying for work, and waiting for something to turn up. Those honest, hardy Highlanders sent out by you find and make work for themselves, and when they get hold of land which they can feel is their own, they are shrewd enough to see that there is an object worth working for. In short, there is no class better adapted for the settlement of the wild lands of this country than those strong, hardy, and persevering inhabitants of the Highlands and Islands of Scotland, and the more of them we get here the better."

From D. Beaton, Esq., Postmaster, and Mayor of Whitton, P. Q.

"We have several of the emigrants sent over by you living in this immediate vicinity, and all are very contented and doing well."

From D. McRae, Esq., Mayor of Lingwick, P. Q.

"Several families from the Highlands of Scotland sent to this country by you in your capacity as Government Emigration Agent have settled in this township, and I take great pleasure in saying that they are all doing well. They have not made a fortune yet, nor could it be expected, but judging from the determined way in which they have gone to work in clearing land, building houses and all other necessary preparations for a future home, I have no hesitation in saying that before long they will be comparatively well off. A better class of emigrants for this section of Canada cannot be found anywhere. Not only are Scotsmen adapted to this country, but the country seems adapted to them, and, when such is the case, success is certain. I am glad to say that during my intercourse with those people, I have found none that attached any blame to you for misrepresenting matters to them, but the reverse, that you were fully as much inclined to show them the dark side of the picture as the bright, and that on arriving in this country they were, if anything agreeably disappointed."

From Aencas M. Myster, Mayor of Hampton, (P.Q.) and Manager of the Glasgow Canadian Land and Trust Company, Limited.

"Referring to the character and success of the Emigrants from Scotland, whom you have been the means of bringing to this section of Canada, it is very gratifying to find that their moral character and religious life is at least equal to the high standard attained by their countrymen in the Highlands and the Islands of Scotland. Churches are as thickly planted round here as in the Highlands, and whether Ministers are available or not, services are regularly conducted by the Elders, who are men of piety and possessed of special gifts for the work. The means of education are plentiful, every little settlement having its school, while in the larger towns and cities the higher branches can be secured. The climate is remarkably healthy, and is not at all understood in the old country. Parties coming now have comparatively little to suffer. Their friends and countrymen are comfortably settled all around, and are both willing and anxious to assist newcomers. To men of the right stamp, and women, too, who are not afraid to work hard, I would say, Come at once; and in a few years they will be their own landlords, and attain to an independence never to be dreamt of at home."

I append two other letters selected from a large number of the letters received from the Emigrants. The last is from a young man whose passage money I paid out of my own pocket at the time.

From these statements it will be readily seen that a more desirable class for the settlement of Canada cannot be obtained than the inhabitants of the Highlands of Scotland. Notwithstanding that many of them have to be assisted, and bring little or no money into the country, they fill their own, and I consider a most important

part in the settlement of a new country like Canada—that of pioneers in clearing the land, in which even men with large capital have often failed and given up as being too tedious and laborious a task for them to accomplish their ends. They are moral, strong, and healthy, and, as stated by some of my correspondents, their former experience of hardships at home qualifies them all the better to face and grapple with the difficulties necessarily incident to new settlers. Having an object before them worth working for, when they settle in a place, they stay and persevere till their own independence is an accomplished fact.

The Province of Quebec has taken a most important and practical step in encouraging colonization by their new scheme of giving loans, &c., to poor emigrants under the Repatriation and Colonization Acts. In connection with this, as well as the Free Grant Schemes of Ontario and Manitoba, I expect to settle a number of desirable emigrants from the Highlands at an early date.

I have the honour to be, Sir,
Your obedient servant,

ANGUS NICHOLSON,
Emigration Agent, Scotland.

The Honourable
The Minister of Agriculture, &c., &c.,
Ottawa.

Letters from the Emigrants.

HURON, BRUCE CO., ONTARIO, Feb. 14, 1876.

ANGUS NICHOLSON, Esq.,
Stornoway.

MY DEAR SIR,—Not being able to see you when in Canada, I take this opportunity of thanking you for your kind services to me while in Scotland. I hope that this may come to your hand, and that you will write back and tell me if you are going to send out any more Emigrants; if so, I would advise them all to go where they can get the land. Although I have no land, I get plenty of work for myself and family to provide us with all that is needful. I may also state that I found everything just as you said to me in Lewis. I hope I will get land before another summer is over. If I am spared, I intend to go to Sault Ste. Marie in the spring where, I am told, good land is sold at a very reasonable rate. The rest that came out with me that are around here are well and doing well. I would not advise anyone to come here that is comfortable where they are, unless they go where they can get land, because it is not very easy for a poor man to get land in this Township, but I would advise all to go where they can get a home of their own and where they can say "*Tha mi nis air mo dhunan fein agus feuch co chuireas dheth mi.*" It is just as easy for them to go where they can get land, as it is to go to Goderich where I came, and you can easily tell them where that is. The Sault Ste. Marie is getting well settled now and I believe it is going to be a good country in a short time. They need not be afraid of the passage, I was only 13 days between Glasgow and Goderich; the cold and frost need not frighten them. Last winter was very cold, but this winter is as mild as I ever saw it at Lewis. I have no more to say at present, so I come to conclusion by sending my best respects to you.

I remain yours, very truly,

ANGUS M'DONALD,
Ripley P. O., County of Bruce, Ontario,
(Late of Carloway, Lewis Is'land.)

LAKE MEGANTIC, October 7th, 1876.

A. NICHOLSON, Esq.,

DEAR SIR,—Please find enclosed, with many thanks, the money you paid for my passage to this country,—although it will not pay the many kind turns you did for me. I am glad to inform you that since I came here two years ago (17 years of age,) penniless, I have sent my father over thirty dollars, have sixty in the bank, paid the first instalment on one hundred acres of land, and have still a few dollars in my pocket. I have never lost a day by sickness since I came to Canada. Hoping that you will always prosper is the sincere wish of

Your humble servant,
 FINLAY M'NEIL,
Late of Breasclaite, Island of Lewis, Scotland.

ANNUAL REPORT OF SPECIAL IMMIGRANT AGENT.

(MR. G. R. KINGSMILL.)

DOMINION OF CANADA EMIGRATION AGENCY,
NOTTINGHAM, 10 January, 1877.

SIR,—I have the honour to make my report for the year 1876. Early in the year, in accordance with instructions, after attending a series of meetings in Somersetshire, I removed to the midland counties, and made my headquarters at Nottingham, with the intention of operating in the surrounding counties.

As in previous years, I kept myself in communication with the agricultural labourers' organizations, experience having shown me that by so doing I adopted the best and most effective means of reaching the labouring classes accustomed to farm work. In connection with the Lincoln Labour League, I held meetings in various parts of Lincolnshire. I had operated with this body in 1875, and had been freely supported by its leaders in my endeavours to promote emigration to the Dominion. Very considerable results have followed my work in this connection; and I am glad to be able to report, that from the several hundred labourers who went to Canada from my district in 1875, through the Lincoln Labour League, we have received the very best and most satisfactory accounts. Had last year been an ordinarily good one in the labour demand in Canada, I am satisfied that we should from this district have fully equalled the emigration of 1875. Though most of those who went out in that year, wrote back favourable letters, they at the same time, very properly I conceive, drew the attention of their friends to the fact that there was a temporary depression in Canada, and that though they themselves had no desire to return, they would not advise their friends to follow them until the depression had passed over, and business of all kinds had entered on a revival. As a consequence, emigration from this district was comparatively small during the year. But as a result of the work already done, I look for a large emigration from Lincolnshire and the adjoining counties when the demand for labour increases in Canada, especially if the district be properly attended to.

In all parts of my district I have come in contact with the agents of the Australian Colonies. On several occasions when I have heard them speak unfavorably of Canada, it has been my duty to combat their statements with arguments and facts. I am glad to be able to report that such meetings have in all cases been conducted with good feeling and in the best of spirit on both sides. It is a mistake to suppose that the Australian Colonies have at all abandoned this field. Though the agents may not be so numerous as formerly, they carry on the work as energetically as ever, and offer certain classes inducements to emigrate quite as attractive as any Canada has ever held out.

I have not by any means confined my operations to the labouring classes. I have attended during the year many fairs and markets, have distributed a large number of pamphlets, and have given personal information to a considerable number of young farmers desirous of emigrating. I know of several cases of such enquirers—all of whom had means—taking up their residence in Canada through information received in this way. Public meetings and lectures are undoubtedly productive of much good; in my opinion, if results could be traced, they would be found to return the largest yield. Yet the experienced agent knows that excellent service is often done among the most desirable class by attending fairs and large markets, and by dining at the market ordinary from time to time. It has been my custom to pursue this course, and I know I have not been unsuccessful.

During the year there were in my district several large sales of live stock, each of which I attended. Whenever I had an opportunity of doing so, I spoke of the great advance made in Canada in stock-breeding during the last few years, pointed out the capabilities of the country in that respect, and distributed printed reports of important live stock sales recently held in the Dominion. In this way the attention of not a few persons of means and experience has been directed to the Dominion as a stock-producing country.

In this connection I may state that there are in Nottingham at present two shops devoted exclusively to the sale of "American meat." Though all the meat sold is called "American," I know for a fact that a considerable portion of it comes from Canada. This important trade, which is still in its infancy, must be made to assume very great proportions, if judiciously carried on and encouraged; but in order that Canada may get her fair share of credit, I think it would be well if some means were taken to impress upon dealers the advisability and propriety of making their "Canadian" meat known as such, instead of having it included in the general term "American." I may state that the meat sells here readily. On market days the shops are crowded with purchasers. The meat is of excellent quality; and, as it sells for about twenty-five per cent. less than English meat, it finds a ready market, chiefly among the working classes. I am glad to be able to report, however, that it is gradually finding its way to the tables of people in the middle classes of society.

The importance of encouraging this trade need not be dwelt upon here. It is growing month by month in my own experience; and must, in course of time, add largely to the income of the Canadian producer. Probably the most important feature of this new trade is that it is calculated to remove erroneous impressions from the minds of Englishmen, touching the climate and soil of the Dominion. The vast majority of the people of this country (I speak from experience) have long fancied that, for from six to eight months in each year, our whole country was snowed up and ice-bound. They did not conceive our land capable of turning out beef and mutton anything like equal to that of England. But now that our meats have been placed before them; now that they have been brought across the Atlantic and sold side by side with English meat, and at a much lower rate, people will be likely to change their views, and to admit that Canada must be a good country for pastoral and general farming. Through this new trade, therefore, we may confidently look in the near future for a considerable influx of stock-breeders and farmers, constituting, I need hardly say, the most desirable class of settlers we could possibly procure—a class deserving of every possible encouragement at the hands of the Government.

During a portion of the summer I was engaged, at the request of the chief agent in London, in preparing a book on Canada for sale and distribution among farmers and others in England. Hitherto we have had nothing of this sort but pamphlets, which, though most useful and beneficial in their way, are not sufficiently full in detail for the best classes that we desire to reach. A pamphlet, with the facts all condensed, giving wages, cost of living, &c., does well enough for the ordinary English agricultural labourer; but it is practicably useless in the hands of the English farmer and capitalist. For such we want something higher, more complete and more advanced. Some of the Australian colonies issued such a work many months ago. It is to be seen on the railway book stalls all over the three Kingdoms. It may be

purchased at a comparatively small cost; and has, I doubt not, proved a judicious and profitable investment, in that it has induced many persons to take up their homes in the colony interested. Canada has long stood in need of such a work, and in accordance with instructions, I undertook, to the best of my humble ability, to prepare certain parts of one, the other portions to be written in Canada. After I had concluded my labours, I proceeded to Canada, where I arranged the manuscripts for the printer, and left the entire work at the Department. I then returned to England; and, after reporting myself at the head office in London, resumed operations in my district with my headquarters as before at Nottingham.

I am glad to be able to report that, as the result of an experience in the emigration work extending over a period of four years, Canada is infinitely better, more widely, and more correctly known than she was at the beginning of my work some years ago. In the rural districts as well as in the towns and villages, the people as a rule have now something approaching correct ideas as to the country, its position, resources and capabilities. This improvement in knowledge is due to the printed matter distributed, the lectures delivered, the letters written to the press, the accounts sent home by immigrants, and the increased trade and intercourse between Canada and the mother country. Most undoubtedly the more widely the Dominion becomes known the greater the influx we may expect of Englishmen seeking new homes in new lands. It should be the duty of every Canadian to aid the government agents in their work, and to assist them in spreading abroad information about their country. Persons, however, who might do much service to themselves and the Dominion, neglect an excellent opportunity. I refer to those who send Canadian produce and other articles to England. Not one in twenty properly labels the case or box as "Canadian." The word "Canada" should always appear; as it is, the Americans get credit for nearly all our cheese, butter, canned salmon, canned lobsters, and other articles exported to this country. In order to get due credit for our exports we must make them known and give them a character as Canadians. I am aware that this subject has been written about before, but it is one, the importance of which, justifies me in referring to it again.

With a revival of trade and business generally in Canada we may look for a very considerable migration from England to the Dominion this year, though it is not likely to reach that of some former years. So far as England is concerned circumstances are favorable for emigration. Labourer's wages are unreasonably low; and while farmers are paying very high rents, they are receiving less than the ordinary prices for their produce. There is an immense surplus capital in the country seeking investment, and trade in many of its most important branches is in an unsettled state. All these circumstances combined seem calculated to induce certain sections of the English people to seek new homes across the seas, and to divert money into more remunerative investments in other lands. Canada, with a revival of prosperity, must receive her share of both people and money. Yet in my humble opinion, it is the duty of agents to act with great judgment and caution, and to carefully abstain from inducing any to emigrate but those in every way fitted to meet the requirements of the country. Of the right sort we cannot have too many; but one bad selection, one fault-finding and unfitted man sent into the Dominion would do more harm to the country by his letters to the press and by other means, than could be removed and counteracted by the favourable reports of a dozen successful settlers.

I have the honour to be, Sir,

Your most obedient servant,

G. R. KINGSMILL.

To the Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL REPORT OF SPECIAL EMIGRATION AGENT.

(MR. THOS. POTTS.)

CLIFTON, 31st December, 1876.

SIR,—I have much pleasure in submitting a report of the labours of the present year, in connection with that branch of your department under which I have the honour to serve. As I have regularly forwarded to the department monthly reports containing particulars of the duties performed, I will take the liberty of assuming that this one can afford to be brief.

I may be permitted to say at the outset that I had an impression at the beginning of the year, owing to the depressed state of trade in America and the number returning from the United States, which naturally induces a depressed state of feeling among the emigration classes, that under any circumstances emigration would be dull this year. However, to elicit further opinions upon the subject I sent circulars to a large number of steamship agents in this district, such of them as I knew had taken sufficient interest in the business to enable them to express an opinion, asking their views of emigration for the coming season. They were unanimous in the opinion that it would not be brisk. And although I am quite aware it does not come within the province of a report like this to express opinions, I may be excused for saying, I think we have reached the lowest point, and may now look for an improvement.

During the early part of the year when things were somewhat unsettled, and it was not definitely known what the rates of passage would be, or what real *bonâ fide* assistance would be granted by the Dominion or Ontario Governments, in hopes that it would be the same as last year, we commenced arranging for special parties to sail on given dates. The first party was to sail on March 31st, and the number of members had reached nearly two hundred, when, I regret to say, the sudden rise in steamship rates coupled with the suspension of the Ontario bonus, almost stopped the entire party and paralyzed all further effort in that direction.

I have given special attention during this year to ascertaining how our Canadian pamphlets were disposed of by steamship agents. I have known from past experience that the indiscriminate distribution of our pamphlets among steamship agents and secretaries of labour unions, resulted in large numbers being wasted, so far as the purpose for which they were intended was concerned, from the fact that they were not distributed at all. Consequently I have made it a special duty to see wherever I went, what pamphlets were in the hands of such agents, and have them brought out and distributed, I am confident I speak within bounds when I say that I have in this way distributed from six to eight thousand pamphlets.

At public meetings, demonstrations, cattle shows, and all other favourable occasions, I have not only distributed pamphlets, but endeavoured to impress upon the attention of tenant farmers the advantages our country offers to them as a class. The extensively increasing importation of Canadian cattle, their superior quality, which Englishmen are compelled to admit are as good as their own, has placed in our possession an additional influence to impress tenant farmers and cattle dealers with the superior qualifications of our country for their business, which we never failed to use during a very successful series of meetings in Devon, held by the Rev. Dr. Taylor and myself, and which were extensively reported in the papers.

I may be permitted further to state, that during an extensive series of meetings, including parts of Devon, Dorset and Somerset, I was frequently spoken to by those of the strictly agricultural class, whose brothers, sons and daughters had been induced to go to Canada by hearing my lectures in those districts some months previous. And it was very gratifying to me to be told, and in many instances see for myself, that the return letters were most encouraging. In no instance did I hear a bad report or see a bad letter, which satisfied me that those who did go, were of the right stamp, and that I had not overstated the advantages offered by our

country to those of that class who were able and willing to work. But I regretted that I could not do as I had done the previous year. viz.:—having letters printed on slips and extensively distributed through the district. Numbers of young stalwart agricultural labourers would have gone to Canada from this district, if passages could have been obtained on the same terms as the previous year.

Early in October by the special request of the Rev. Dr. Taylor, I went to Inverary to assist at a meeting presided over by the Marquis of Lorne. The meeting was in the parish church and was a large and interesting meeting, the particulars of which I had the honour to report to you in my report for the month.

This was followed by a very successful series of meetings in Cornwall, in company with the Rev. Dr. Taylor, where in scarcely any instance could we get a room large enough to hold the people, so that hundreds had to go away. Owing to a decline in mining interests and a general scarcity of work, the opinion expressed by the intelligent class was: That numbers would have to leave in the spring, and that we had come in the right time to direct them where to go. So that I am in hopes of seeing a considerable emigration from Cornwall during this coming summer.

I have attended by special invitation three large demonstrations of agricultural labourers, one at Ham Hill, in Somerset, where 8,000 people were assembled, one at Sherbourne, and one at Oakley.

I have addressed in all, 50 meetings in the open air, with audiences ranging from 8,000 to 100 combining all the diversified conditions that exist between the cold, rainy sleet of an English winter night, and the magnificent spectacle of 8,000 on a summer afternoon in an old Roman amphitheatre that looked like a natural coliseum made for the purpose. I have also addressed 27 meetings in halls and public buildings, presenting similar extremes, ranging from the village club room with an humble agricultural labourer as chairman, to the splendid meeting in a beautiful parish church where royalty often worships, presided over by the Marquis of Lorne. Under all these conditions I have had the pleasure of presenting the capabilities and resources of our great country, adapting myself as much as possible to the style of my audience, by endeavouring to make the humblest agricultural labourer understand the advantages our country offers to him who toils in the field for his daily bread. And if he has energy and ambition to take advantage of them, he can soon better the condition of himself and family; and by disabusing the more intelligent of their prejudices, showing them that we have a country second to none in its adaptability to the emigrating classes of the British Isles.

An excellent little pamphlet recently issued by Mr. Dore upon the subject of Canadian cattle, particularly adapted to tenant farmers and cattle breeders, I had distributed at the Christmas cattle shows of Bristol and Bath. I also sent small lots to some steamship agents I could depend upon, in the agricultural districts of Somerset, Dorset and Devon.

I may be permitted just to add that I have given every assistance in my power to J. W. Down, Esq., toward settling the thousand families in Manitoba, upon the lands recently reserved by the Government for that purpose.

I have the honour to be, Sir,
Your obedient servant,

THOS. POTTS.

To the Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL REPORT OF SPECIAL IMMIGRATION AGENT.

(MR. THOMAS GRAHAME.)

CARLISLE, 27th December, 1876.

STR,—I have the honour to transmit herewith the Report of my operations in connection with Emigration during the year 1876.

In the first portion of the season I was chiefly in Selkirk and Peebles-shires, and in parts of Durham and Yorkshire, and, besides these counties, I have been through a considerable portion of Wigton, Kircudbright, Roxburgh and Berwick-shire in Scotland, and Westmoreland and Northumberland in England.

In all, I have held considerably over 100 meetings, which have been well attended as a rule, and distributed a large quantity of literature in the shape of pamphlets, papers, &c., both at my various meetings, shows, &c., and by post. I have found in the great majority of instances that I have been able to do much more good at my meetings in purely rural villages, than in the larger villages or towns, and especially do I find this the case in places some distance from railways and large centres. In towns even where audiences are fair as regards numbers, they almost invariably consist of people who have no idea of emigrating, but come out of mere curiosity to hear what is to be said; whereas, in the country parts I frequently find a very considerable portion of those present with ideas of going, if they could see their way to do so satisfactorily. The only advantage, in my opinion, of meetings in towns is the opportunity which is given, when newspapers are favourable to emigration, of having a report of the proceedings circulated in the district adjoining. Of course, there are instances where papers will do nothing to further the interests of emigration, and then other means have to be taken advantage of for disseminating information.

I have generally managed in whatever district I have been, to get some people of standing in the locality to take an interest in my work, and frequently have clergymen, gentlemen of property and professional men as chairmen of my meetings; and there can be no doubt of the advantage it gives, to have an introduction to any audience by men in such positions.

The new pamphlet on Manitoba I think a great improvement on any preceding one, and it will, I have no doubt, bring about beneficial results where judiciously distributed. The little pamphlet on "Stock Raising and Pedigreed Cattle in Canada," I consider very valuable, especially for distribution at the various shows and fairs, which take place at market towns.

From my experience of former years, I think it is a matter of considerable moment to have the programme for the year, so far as assistance, &c., is concerned, known the autumn before, certainly not later than the 1st of February, as otherwise, in the case of agricultural labourers with large families, who wish to emigrate, and who have very little means, from the fear of not having enough to pay all expenses incurred in going out, they live on again for the six months of spring and summer during March and April, and thus are lost for at least a year. These people, in many instances, if aware for certain, in time, of their being able to go out at assisted rates, would undoubtedly make their preparations accordingly, knowing they could raise sufficient to take out their whole families.

Another matter of considerable importance in the ideas of many, is the advisability, so far as possible, of having a published list annually of all farms and property for sale in all the various Provinces, with a description of them. This plan has, I believe, been found to work very well in the Southern States and other parts.

I have received a number of letters during the year from parties who have gone out from this district within the last few years, and in no instance have I found any dissatisfaction expressed. One gentleman, who has been settled in Muskoka for three years, speaks in strong terms of his satisfaction with the change he has made in settling there.

I have found in many portions of the country that there are numbers of people who are desirous of emigrating, but the difficulty in their minds is that they are going to a wild, new country, and they know none of the people among whom they must settle. Now, to such people something in the nature of a colony would present great inducements, and I think, therefore, if some scheme in this way could be devised for this district it would work very satisfactorily. The great majority of the people in these counties are fairly well to do, very few even of the agricultural labourers who emigrate requiring assistance, as their wages are much better than in the south, so that there would be less difficulty in perfecting a plan of colonization for them.

I have made it my business, particularly throughout the summer months, to see as many of the small tenant farmers as possible, and give them information as to the new portions of our country. Many of these people in the western counties of both England and Scotland have of late been thrown out of their farms from landlords desiring to have fewer tenants and larger farms, and no better class could be obtained for emigration to any new country. Numbers of them have a considerable capital, and all of them some, and they and their families have all their lives been accustomed to hard work. I find that many of them have a strong desire to go to Manitoba, especially since the very favourable reports from that Province this year, and if inducements are given to them to go out and settle in accordance with my letter of last February, which met with the approval of the Department, I feel certain there will be a very considerable emigration of this class to our western Provinces next year.

There can be no doubt that business being so dull in Canada last year had a deterrent effect on emigration, and also the unsatisfactory accounts from Manitoba of 1875, but I have no doubt with the improvement in trade, and the fine crops in Manitoba this year, and beyond all the large accumulation of people which has taken place here within the last few years, that there will be a large emigration next year of which Canada should have a fair share.

I attended a large number of fairs, shows, and sales during the summer months and met with a considerable number of Canadian purchasers of stock, through whom as well as by myself on such occasions I distributed a large number of pamphlets, &c. There continues to be a large number of animals purchased in this district for various parts of our country, and I am frequently enabled to give satisfactory information to intending purchasers, and procure assistance for them in the transport of their stock when they require it, and these people as a rule become permanent residents in our country.

On the whole, I have had fair success, and have been instrumental in inducing a considerable number of a variety of classes to settle in our country, more particularly agricultural labourers and tenant farmers with their families.

I have had a large number of communications from people desirous of information regarding the several Provinces, and in almost all instances with the intention of settling in our country if satisfied with the knowledge they obtain. Maps of all kinds, I find, are the most eagerly sought after of the various kinds of literature I distribute. In many instances I have Canadians at my meetings, who, when corroborating my statements, as they invariably have done, strengthen materially the remarks I may have made, as in many rural districts the people are utterly ignorant of any place beyond Britain. I have continued the course of lecturing occasionally in places where I have spoken a few years ago, and obtain very beneficial results, as I have generally found that some have gone in the meantime, and, therefore, there is a greater desire to hear me again.

I have the honour to be, Sir,

Your most obedient servant,

THOMAS GRAHAME.

The Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL REPORT OF SPECIAL IMMIGRATION AGENT.

(Mr. S. CAPPER.)

CANADIAN GOVERNMENT OFFICE,
17 PRINCESS STREET, MANCHESTER, January 1, 1877.

I have the honour to submit a brief report of my work as Special Immigration Agent during the past year.

Upwards of 1,600 letters have been received and replied to from this office, and nearly 4,000 personal applications for information have been made. Owing to the depression in many branches of trade, I devoted my attention to promoting emigration amongst three classes only, namely, farmers, farm labourers, and female domestics. Early in the spring I was able to induce several farmers to visit Manitoba, and from letters since received they have each expressed themselves well satisfied with their venture, and in two cases the emigrants speak in the highest terms of the Government Agents there. I have also sent two families of farmers to Missisquoi county, in Quebec Province. They are all doing well. In none of the above cases was any help given except advice.

I am glad to be able to state that the farm labourers and female domestics sent out from this office are all doing well. Not a line has been written by any, to my knowledge, except to praise the country and to commend it to their friends.

During the year I have delivered upwards of 200 lectures in Ireland, the Isle of Wight, the north of England, Midland counties, and in the south of England also. I have by this means been able to bring Canada and its advantages before not less than 150,000 persons directly.

In the summer months I had pamphlets distributed at several agricultural shows in Lancashire and Cheshire, and have circulated nearly 30,000 tracts and pamphlets.

Many applications have been made at the office for information regarding various securities of companies and corporations in Canada. I have been able to introduce capital into the Dominion in several instances.

Canadian manufactures I have been able to considerably aid. Sherbrooke and Guelph have each been benefitted this way.

It has needed much care to prevent an undesirable emigration, and I have found New Zealand and other places profiting by the work of Dominion Government Agents, because they have been able to out-bid us in giving aid to desirable persons, who would have done well, and made good settlers in the Dominion; but they were unable to pay any portion of their passage.

The prospects for emigration appear to be better for the coming year than they were in 1876.

I cannot conclude without giving my thanks to the Chief Agent in London for his promptness and kindness, as well as practical advice, whenever needed.

I have the honour to be,

Your obedient servant,

SAMUEL CAPPER.

To the Honourable
The Minister of Agriculture.

ANNUAL REPORT OF DUBLIN AGENT.

(MR. H. J. LARKIN.)

13 EDEN QUAY, DUBLIN, 28th Dec., 1876.

SIR,—I have the honour to submit Report of operations at this Agency during the past year.

I attended regularly at my office under the immediate directions of the head agency in London, seeing all the intending emigrants (many of whom have occasion to visit this city on general business frequently), and explaining to them the advantages our Dominion offers to all the sober, industrious suitable classes, handing them a good supply of pamphlets to read over at home and circulate amongst their friends and neighbours, as they would thus obtain the requisite authorized information more fully.

I was kept busy answering letters giving information suitable to the comprehension of each applicant, and when I felt satisfied a personal visit to some outlying district would be desirable and advantageous, I left a competent person in the office to supply pamphlets, and to tell enquirers to write me fully for details.

I was obliged to pay special attention to the more southern parts of my Agency after the removal of my late colleague, (Mr. Talbot), and I visited all the principal steamship agents, with much benefit to Canada, finding them well disposed to assist generally.

I acted on the strict instructions of holding out no inducements or encouragements to any, but *good servant girls, genuine able bodied farm hands*, and of course above all to *capitalists*, urging them to avail themselves of the favourable time for investing their money in farms and real estate generally, but advising all others to await another season for fear of disappointment on landing, especially if poor and with small children.

I can claim success in influencing a good number of persons who took out considerable sums in bank drafts procured by me for them, and I have letters from most of them, expressing their satisfaction with the investments and rate of interests in Canada, compared with one per cent. allowed on deposits by the banks here this year.

I secured some Capitalists for Victoria, (British Columbia), who are filling up contracts in cured and tinned salmon for some of the London houses, with good profits, and there are here some naval and military retired officers with large families preparing to follow them, as they too prefer that mild climate to more northern parts of Canada.

I have sent this year, as well as every year since 1872, some good settlers with means to Manitoba, amongst whom I would mention, R. S. Pelly, who has taken out his own family and many friends and neighbours from the county Galway, (his native place), and advanced all their expenses to his own door at Fort Pelly. His letters have much aided me, and encouraged many others to follow him, and to purchase all the lands their means would permit adjoining their free grant lots in that Province.

I have been circulating largely all the pamphlets on Manitoba, but especially those sent me lately by Mr. Dore, containing the evidence taken before the Select Committee on Immigration and Colonization of the House of Commons, Canada, during the session of 1876; being the testimony of so many members of our Legislature they attract much attention and thoroughly convince the most sceptical, of the great advantages this Province possesses for the European emigrant.

I find a general desire amongst our Irish emigrants to obtain prairie lands in preference to timbered lots, attributable in many cases to efforts the American agents have made for years past to exaggerate the labour and costs of clearing lands in our

Canadian timber districts, and hence I bespeak a large emigration to our new North-West Territories as soon as our railways are completed, if efforts are made to circulate full information on their resources.

I find the tide of emigration turned from New York and the States of America, to the Australian and New Zealand Colonies with their free passages, so that when orders are issued for increased numbers to Canada, we shall not have the old difficulties to contend with of finding nine out of every ten persons who come to consult us with their minds fixed on the States where so many of their friends gone before them, and who would show the greatest impatience in listening to any advice for them to turn their attention to Canada, (as latterly they eagerly seek information from us on the subject.)

The numbers who can be secured for Canada now will depend on the encouragement we can honestly hold out as to wages and employment, as there are numbers awaiting only more cheering intelligence to complete their arrangements to sail under our advice.

All the emigrants from this agency write home to their friends of the great kindness and attention they all receive at the hands of the Canadian Government immigration agents until they are placed in situations, or able to settle down in their new homes, which enables us to expatiate loud and long on the great advantage of this attention compared with other countries where they are left to the mercies of all the sharpers who may surround them without any protection.

I would respectfully suggest that good "Land Registers" in sheets with descriptive particulars of farms and properties for sale throughout the Dominion would be a great advantage to Canada, and save us much trouble in furnishing information which cannot be as complete or satisfactory as printed catalogues from your Department.

I have just received a small pamphlet from Mr. Dore, being "a few facts on Stock Raising and Pedigree of Cattle in the Dominion of Canada, 1876," which I deem most useful and suitable to this agency for circulation.

I cannot close without adding that I have been benefitted by the book written by Mr. Peter O'Leary, entitled: "Travels and Experiences in Canada, the Red River Territory, &c.," as well as many of his carefully written and judicious, well timed letters in the *Irish Press*, on the status and advantages the Irish emigrant enjoys in our free young Dominion, and which have attracted much and well-deserved attention, coming from a fellow workman to his own "kith and kin," describing so well what he has visited and seen, for their benefit and instruction.

I have the honour to be, Sir,
Your obedient humble servant,

H. J. LARKIN.

To the Honourable
The Minister of Agriculture,
Ottawa.

ANNUAL REPORT OF BELFAST AGENT.

(MR. CHAS FOY.)

11, CLAREMONT STREET,
BELFAST, 10th January, 1877.

SIR—While I regret having to report a small emigration from this part of Ireland for the year 1876, a reference to the emigration returns of the Commissioners of Emigration of the Imperial Government proves to me that Canada got as many emigrants, in proportion to the total number to all parts of the world, as in former

years. With the exception of one colony, New Zealand, emigration was almost nil to any of the British Colonies or to the States. As mentioned by me in a former report, the Government of New Zealand granted a large tract of land, reported as of magnificent quality, to a North of Ireland gentleman, on conditions of his bringing a certain number of settlers from the North of Ireland; the reports of some of the settlers give a most glowing account of the quality of the land, of the immense crops they raised, and of the splendid crops of New Zealand. Owing to this, and free passages, New Zealand got some emigrants from this part; but I have reason to believe that this year the exertions of that colony in emigration matters will be very much contracted; in fact, from the statement of the Premier of the new Government, it is beyond doubt that New Zealand would not be able to continue the immense expenditure she has been devoting to immigration purposes. I calculate from the contracts for the passages of emigrants, that each emigrant costs New Zealand at least £20 sterling.

In the year 1870 I suggested to the then Minister of Agriculture for the Province of Ontario, the advisability of allotting a township or two of good land for a North of Ireland settlement. If this could yet be done, I believe that it would be the best means of obtaining a number of settlers from the farmer-class of this country. If, say fifty or sixty, or even twenty families, on familiar terms in this country, emigrated in a body, it would take away all the pain of parting and the lonely feeling of settling among strangers; the twenty families would soon induce twenty more to follow them; and if prosperous, as North of Ireland settlers almost invariably are, each individual would be an assistance to me by testifying to the truth of my reports.

During the closing months of the year I published, by your authority, in pamphlet form, copies of letters from emigrants and other information for the farmers in Ireland. In my last report I anticipated a bountiful harvest. In doing so, I was only repeating the anticipations of every person who expressed an opinion. The result has proved man's short-sightedness. Almost every crop was short; the potato crop was an exception; it was most abundant, but two or three months later than any year since the first failure, the fatal disease appeared, and up until this date the potatoes are rotting in the houses. In my travels through the country I was, in the first week of this month, in a small town during the term of Quarter Sessions, and an attorney's clerk told me that one Process Server had served one thousand civil bills, and there are three civil bill officers in that district; if the other two served half the number, five hundred each, there would be two thousand processes served in the neighbourhood of a town of less than two thousand inhabitants. My pamphlet I have well distributed, also a good supply of a pamphlet on Manitoba, sent me by Mr. Dore. In my conversations with the farmers I am taking advantage of the false anticipations we had of the harvest. I am impressing upon them that whilst in Canada farmers cannot always calculate upon abundant harvests, this much they are sure of—if Providence sends one, two or three years of bad harvests, there are in Canada no bailiffs with ejection processes bursting their pockets, going from door to door; the Canadian farmer, whose farm is paid for, can tide over two or three years of bad harvests with a little assistance from the storekeepers. I find that my advice is not altogether lost, especially upon the sons and daughters of the farmers, and as far as human foresight enables me to form an opinion, I expect good results in the coming spring.

The importation of Canadian cattle to this country has a good effect upon the farmers, as it proves that, where labour is so high, they would not be confined to growing crops; also, that the importation of Canadian beef into this country must eventually tell on the price of meat here, and, consequently, on the price of young stock and on the value of land. The small farmers are the nurses of the graziers, and for the last ten years the most profitable branch of their farming has been the rearing of young stock; in fact, for the last three years, the rents could not be met by the small farmers but for the exceptionally high prices of stock. I have kept a watchful eye upon all the accounts in the Canadian papers of exportations of cattle,

sheep and horses to England, and have had them copied into the Irish papers. Many have expressed their astonishment to me, and graziers tell me that if all my reports be true they have a gloomy prospect. I am urging some of the butchers of this town to make a trial of some of the Canadian cattle, and they tell me that if they were brought to Belfast they would certainly buy. Beef sells here, prime at 10d. per lb., joints; one shilling, sterling, steaks; so that our butchers should be able to pay as high a price as the Liverpool or London butchers. During the summer a steamer with a number of Canadian bullocks on board, was stranded at Larne, within a short distance of here; the cattle were taken off, and shipped from here to Liverpool. I sent some respectable butchers to see them, and one of them told me he had never had better beef on his hooks. Two of the bullocks that were injured were killed at Larne, and their weight surprised the Belfast butchers. Previous to leaving Canada, as many of my friends will no doubt remember, I frequently urged the Canadian farmers not to depend so much upon the wheat crop, to recruit their land by grazing instead of deteriorating it by sowing wheat for years consecutively in the same land. I am much pleased to find that grazing is becoming popular, and hope that next spring the exportation of fat cattle, horses and sheep will be pushed on to an increased extent. As to horses, I was led to expect that some of last year's exportations would come to Belfast, and, consequently, wrote to the local press my experience of the qualities of the Canadian horses. There was quite an anxiety for their arrival, and some of my friends, who required horses for vans and other work, delayed their buying until I received word that the horses were sold in Liverpool. I allude to these exportations, because I believe that they have a connection with emigration; they bring home to the people here, in a practical, common sense form, what Canadian farming is, and afford opportunity to the Emigration Agent to keep Canada before the people; they make the people talk of Canada and inquire as to her resources, &c.; and, while on the subject, I would respectfully suggest the advisability of my having on exhibition at this office, samples of manufactured goods in which Canada excels, that intending emigrants might see that Canada can not only raise good beef, mutton and horses, but is also a manufacturing country. I have frequently explained the difference between the unwieldy, unsightly axe, or, as it is called, hatchet, of this country, and the handy axe used in Canada; also almost every other farming implement, but a few specimens would explain the difference much better than words.

By the enclosed sheet you may see that the New Zealand Agent here has adopted the plan of my pamphlets—publishing letters from immigrants. He got a pamphlet of mine and sent it to the late Agent-General for that colony (Dr. Featherstone), and got authority to publish similarly. A pamphlet of mine was sent as well to Australia, and the principal paper in Melbourne had an article headed “How they do these things in Canada,” and urging upon the Government of Australia the wisdom of following the example. I do not, I assure you, Sir, mention this in a feeling of egotism, but simply to prove to the people of Canada through you, as I think I should do, that the cause of emigration to Canada is, by the uninterested opinions of the press of other colonies, advocated as being worthy of imitation.

Of the quality of the emigrants sent by me during the past year, I feel I should say no more than that they were equally good as in former years—people whom any country should be sorry to lose, and any country glad to receive.

As to what the coming spring may do, it would be foolish to profess a certainty. I can only say that, as in duty bound, I shall use every exertion by pen and travelling to secure a good emigration, and to keep everything favourable to Canada constantly before the people of this part of Ireland.

I have the honour to remain, Sir,

Your obedient servant,

CHARLES FOY.

To the Honourable
The Minister of Agriculture,
Ottawa.

ADDENDA.

On my way to post I met my friend Alderman Mullan, J.P., in the shop of Mr. Fitzpatrick, one of the principal butchers of this town. I thought it a good opportunity to introduce Canadian cattle, and was pleased to hear that Mr. Fitzpatrick had two Canadian beasts for the Christmas market. He told me he would be very glad to have them every week; that he went to Liverpool to purchase the two he got; that if they were landed here they would meet a speedy sale, as they are *the best beef* sold in either Liverpool or Glasgow, but that it is very inconvenient to go to Liverpool uncertain whether any Canadian cattle have arrived, and perhaps have to wait two, three or four days before they arrive. I do hope that a trial may be made of the Belfast market, for some of the shipments of the coming spring.

ANNUAL REPORT OF LIMERICK AGENT.

(MR. J. MURPHY.)

LIMERICK, (IRELAND,) 10th January, 1877.

SIR,—I have the honour of submitting the following report of my efforts in directing emigration to Canada from the South and West of Ireland for the year 1876.

Immediately after my arrival in this city, and after my transfer from the Ontario to the Dominion service, I made application to the late Agent General for a supply of pamphlets, and also for instructions. I punctually received a liberal supply of Canadian literature, but was informed that in consequence of the Government having decided to abolish the office of Agent General, Mr. Jenkins had severed his connection with emigration matters, and, as a consequence, declined to make any suggestions for my guidance. My experience as Ontario Emigration Agent was quite sufficient to guide me in the performance of my duties, and I at once entered upon their active discharge.

As Limerick is the chief business centre for large portions of the counties Limerick, Clare, Tipperary and Kerry, I distributed on market and fair days a large number of pamphlets and circulars amongst the rural populations of the above counties, visiting the city on these occasions. During the year I also travelled extensively, visiting during my tours the counties of Cork, Tipperary, Waterford, Wexford, Kilkenny, Clare, Roscommon, Galway and Mayo, in addition to paying visits to several localities in the county Limerick, in all which I distributed, as opportunity offered, a large quantity of printed matter. During the year I gave away pamphlets, maps, and circulars to the number of 8,000.

I have had frequent applications from correspondents in almost all the counties of Ireland for information on Canada, which I invariably answered by letter, and by forwarding copies to each applicant of all pamphlets in my possession at the time. I noticed that many of those who wrote to me asked for free passages, having evidently confounded assisted passages with such, and who seemed surprised that they could not get them, although in my advertisements in the newspapers, I offered only assisted passages to the classes required in Canada, namely, agricultural labourers and female domestic servants.

During the course of my travels in Ireland in the interests of emigration, I came into contact with many classes of the people, the majority of whom I found much opposed to further emigration. Professional men (particularly Catholic clergymen, with few exceptions) as well as farmers and the mercantile community are opposed to emigration; but I early discovered that their reasons were selfish. The

farmers, as a rule, than whom there are no people in Ireland more prosperous in comparison to former days, are altogether opposed to further emigration, because, though making comparative fortunes, they are most desirous of securing labour at the lowest possible price. I have seen it proposed in a late number of the *Toronto Globe*, that it would be more advisable for British Emigration Agents to use all their energies to encourage the emigration of small farmers to Canada. This might have some effect in England and Scotland, but as far as Ireland is concerned, you might as well try to persuade the Prime Minister of England with a majority of one hundred behind his back, to tender his resignation, as to expect a farmer in Ireland, if possessing even only a few acres, to emigrate from the country, in such high estimation is a farm held.

A certain prominent newspaper in Ireland has been discussing Irish emigration to Canada, and has advanced the opinion that emigration from the North of Ireland (particularly of a certain class) was more favoured than emigration from the other Provinces, and this assertion was made because, as it said, an extra agent was sent to Belfast. The paper in question ignores the fact that for a generation past the people of the North of Ireland have favoured Canada in preference to the United States, whilst the people of the other Provinces for quasi-political and other reasons have turned their faces towards the Republic. It is natural to suppose that where emigration has flown, the pioneers will attract to them their relatives and friends. Thus it is that a majority of those leaving the North of Ireland settle in Canada, particularly in Ontario, whilst the people of the other Provinces, especially of the South and West, favour the United States, as scarcely a family can be met with that has not one or more relatives or friends in that country. The fact that Moville, the outport of Derry, is a port of call for the Allan line of steamers, helps also to encourage emigration from Ulster, whilst immigrants from Connaught or Munster have to take shipping from Liverpool, at considerable additional expense, if they desire to emigrate to Canada.

The labour of Emigration Agents can hardly be estimated by the actual applications made by them for assisted passages to the offices in London, as in the majority of instances the parties asking for information and advice, after having obtained them, make application to the local agent of the Allan and Dominion lines of steamers for passages. This is a fact in Ireland as a rule, and yet whilst these parties frequently get the credit and advantages produced by the labours of the Government Agents, in many cases several of them not once in a year distribute a pamphlet or circular. I make it a point in visiting country towns to call upon the Agents of the steamboat lines located there, and this is almost invariably the case. Again these steamboat Agents, in addition to their commissions from the Companies, receive from the Government a bonus of five shillings for each emigrant to Canada. The consequence of this is that no matter whether the applicant for an assisted passage is suitable or not for Canada, the Agents will forward his application knowing that if granted he will pocket the bonus as well as the ordinary Steamship Company's commission. Thus many emigrants ineligible through age or occupation for Canada, are forwarded to the country through the agency of these parties.

I have frequently been applied to by would-be emigrants, for assisted passages, whose only object was to get to Canada as cheaply as they could in order that they might afterwards make their way to the United States. This I generally discovered by closely questioning them, and, as a matter of course, I invariably refused to have anything further to do with them. The Agents of the steamships in the country care nothing about these matters and are willing to obtain assisted passages for such parties as for *bona fide* settlers for Canada, knowing that they will obtain their commission, and the Government bonus in the one case as well as the other.

The free passages offered by the Australian colonies of Queensland, South Australia and New Zealand continue to operate unfavourably on emigration to Canada. The very best of the rural population, both male and female, the younger members of farmers' families, the cream of the population of Ireland are being forwarded to these colonies at the expense of their several Governments. This, with the fact of the

present depressed condition of commercial matters in America, militates against the successful efforts of Canadian Emigration Agents.

Since my location in this city I have invariably encouraged the emigration of agricultural laborers and female domestic servants, and have, if anything, advised mechanics and others of that class to postpone for a time their emigration, in cases where they asked my advice through the port, or by a personal interview.

I will not undertake to hazard an opinion on the emigration from Ireland for 1877, as so many circumstances from time to time are capable of influencing it; but I confidently believe that renewed prosperity on the American continent would give a renewed impetus to it, and I am certain that Canada will receive its fair proportion of the sons and daughters of the South of Ireland.

In conclusion I have only to say that as far as I am concerned, I shall duly perform my duties to the best of my ability; and in compliance with the instructions from time to time received from my official superiors.

I have the honour to be, Sir,
Your obedient servant,

J. MURPHY,
Special Emigration Agent

To the Honourable
The Minister of Agriculture,
Ottawa.

(Translation.)

REPORT OF SPECIAL IMMIGRATION AGENT IN FRANCE.

(M. P. DECAZES.)

PARIS, 21st December, 1876.

SIR,—French emigration to Canada, as a movement, has been insignificant and in fact has hardly amounted to anything, during the year 1876.

The reasons I had the honour to point out to your Government, in my Report of last year, as inducing this state of things, are the same to-day. The causes having been intensified, it is not surprising that the results should have been still worse.

Owing to the continued crisis which prevails throughout North America, I did not deem it right to conceal, on all occasions when I was called upon to give my opinion, the small inducements now offered by Canada to foreign emigration, and more particularly to emigrants unprovided with pecuniary resources. I considered that in so acting, I was conscientiously interpreting the intentions of your Government and strictly complying with the instructions transmitted by its orders in that behalf.

I have, in previous years, endeavoured to call public attention to our country by a series of articles published in an important Paris newspaper, and have never failed to furnish verbal or written information to all persons applying to me therefor.

The experience I have gained has confirmed me in the opinion I have on several occasions expressed to you in relation to emigration from Switzerland, the Tyrol, and the north of Italy, as being the most likely to afford every possible satisfaction to your Government.

Most of the industrial and agricultural products of Canada shown at the Centennial Exhibition, seem to have greatly attracted the attention of the delegates sent there to represent the French Government. It is, I think, much to be desired, in the interest of our trade, that great efforts should be made by your Government to sustain in France in 1878, the excellent reputation acquired by our country, on that occasion.

As to emigration, it is to be anticipated that so soon as the causes which have checked the continental movement towards Canada shall have disappeared, it will soon revive under advantageous conditions.

I have the honour to be, Sir,

Your most obedient servant,

P. DECAZES,
Special Agent for France

To the Honourable
The Minister of Agriculture, &c., &c.,
Ottawa.

(Translation.)

REPORT OF IMMIGRATION AGENT OF THE DOMINION OF CANADA IN FRANCE

(M. GUSTAVE BOSSANGE,)

PARIS, 31st December, 1876.

SIR,—I have the honour to submit the report of my operations as Agent of the Dominion of Canada in France during the year 1876.

The continuance of the commercial and industrial crisis, which has already too long prevailed in Canada, has had the effect of diminishing wages and of leaving out of employment a large number of tradesmen. The situation would have been very different had Canadian trade and industries been able to maintain themselves in the same state of activity and prosperity they were in a few years ago, and which had then induced the Government to invite emigration on a large scale.

Under these unfortunate circumstances, French emigrants, who have no families or friends near by to assist them in time of distress, suffer more than Canadian tradesmen, and I beg to express my hope that the good offices of the Government will not fail them.

The crisis rendering it my duty to be extremely circumspect, I had to confine myself, during the year just ended, to furnishing information on Canada, and distributing pamphlets, while advising the recipients to await better times before starting for Canada.

The number of emigrants registered is so small that it would serve no purpose to classify them into nationalities, professions, &c., as done in my previous reports, viz., adults, 92; children, 8.

The greater part of these emigrants stated that they were going out to their friends or relatives in Canada.

A certain number were registered at the offices of sundry emigration agents *without any responsibility on my part, or any possibility of my ascertaining the nature of their callings*, and sent out by the Allan Line.

These emigrants received at my offices letters of credit on Canada, or bought bills on Canadian Banks, to the amount of 100,000 francs, say \$20,000.

I received from Monsieur Paul De Cazes, Special Agent of your Government, the most cordial assistance, and desire, in concluding, to offer him my best acknowledgements.

Respectfully submitting this report for your consideration, I beg to inscribe myself

Your obedient servant,

GUSTAVE BOSSANGE,

Dominion Immigration Agent.

To the Honourable
The Minister of Agriculture and Immigration,
Ottawa.

ANNUAL REPORT OF SPECIAL AGENT TO ICELAND.

(MR. W. C. KRIEGER.)

LONDON, Dec. 30, 1876.

SIR,—On the first of January, 1876, I was at Akureiwi, a village in the North of Iceland. It was here that I first commenced operations. A serious obstacle in my way, was the fact, that an Emigration Law, with very stringent clauses had been passed by the Diet, during the last session, and was expected by the first boat in spring, after having received the sanction of the King. The officials, obstinately opposing emigration, pleaded that the law had actually been passed, and that they consequently could not allow any propaganda, except in accordance with its requirements. After a great deal of annoying skirmishing, and having been the object of continuous petty persecution, I saw at last, that nothing could be done without actual permission. I applied therefore to the highest local authority for permission for my agents to work for a month, at the same time promising within that period to get the permission or refusal of the Governor of Iceland, and to abide by his decision in the matter. Having arranged with some good men on the spot to work for me during my absence, personally guaranteeing them the usual commission on the tickets, I proceeded at once to Reykjavik, the capital of the island, where the Governor resides.

Though the winter, as I was informed, was an exceptionally fair one, it was only after twenty-two days of almost continuous walking, that I at last reached the capital. I represented to the Governor, that I would guarantee, on the strength of my position, that no emigrant should leave the island except in strict accordance with the law, and that I should go to England myself and see to the prompt fulfilment of the most important clause:—A deposit with the Governor of eighteen thousand crowns on behalf of the ticket agent.

The Governor kindly consented to my proposals; and without this permission, not a single emigrant would have been able to leave the island. During the months of February and March I traversed the southern portion of the island, as far as the incessant rains and the short days would allow. The impecuniosity of the people in this part, however, makes emigration from that locality absolutely dependent upon a liberal assistance. On the 20th of March the first boat arrived, and with it the sanctioned law. By this time I had collected the names of some 800 people, as well as an instalment upon their passage money. This was deposited with the Governor. It was necessary that this money should have been paid, as no steamship company would have been likely to deposit the large sum of money required by the law, or have sent a costly steamer upon such a risky voyage, had I not been in a position to give them some tangible proof of the number of passengers likely to go, and the sincerity of their intentions.

Immediately upon my arrival in England I placed myself at Mr. Dore's disposal, and gave him the details of my winter's work. Instructed by Mr. Dore, I called upon the different lines of steamers trading between Great Britain and the Dominion, partly accompanied by Mr. Dore, and gave them all the information I could regarding the number of emigrants, the suitable time for their departure from Iceland, and the mode in which this should be done, as provided for in the law. Mr. Dore afterwards made me acquainted with an arrangement which he had entered into with the Messrs. Allan, according to which this firm undertook to carry the emigrants from Iceland to Quebec on a through ticket in compliance with the Icelandic law. The Messrs. Allan further agreeing to provide for means for the purchase of stock in the island, without which a great number would have been left behind.

I returned at once to Iceland, my stay in Great Britain only lasting ten days. Arrived out, I rode to the districts, whence the people were to embark, and was personally present at their departure. I left Iceland myself with the last party, and only left them after I had seen them safely on board the "Phœnician," and under

the care of an efficient interpreter. After a few days stay in London I proceeded to Ottawa. According to instructions received from the Department, I went out to Manitoba and visited the Icelandic colony on the shores of Lake Winnipeg. Having satisfied myself that with the exception of some neglect, which was shown on the part of some of the steamers carrying the emigrants from Ontario to Duluth, the twelve hundred souls which I had gathered in Iceland, had got out to Manitoba in as good condition as could have been hoped for, I left again for England.

Mr. Dore having made arrangements for the continuancy of the steamship agencies in Iceland, at least for one more season, I proceeded thither again. I procured the permission of the Governor of the Island for the agents to work, and appointed men in all the districts, where people are likely to emigrate from; but beyond this, I was not allowed to work. The law makes it a grave offence (six months' prison and a fine of £100) for any one except the duly authorized steamship agents to act in the matter; and I was politely informed that beyond supervision and management, I should not be allowed to go. Nor will my continuous presence be at all necessary any more. The movement has been set on foot; and with proper management from England, and occasional visits to the island, there is every prospect of a steady and good-proportioned flow.

The grave reports which reached me upon my return from Iceland, that the Icelandic colony in Manitoba is being fearfully decimated by small-pox, will naturally check, if not totally destroy, all emigration from there during the coming season, should they prove true. At all events capital will be made out of it in Iceland, and I am afraid that the cheerful prospects which really existed when I left Iceland, will be somewhat curtailed as far as this year is concerned.

I have the honour, to be

Your obedient servant,

WM. C. KRIEGER.

To the Honourable,
The Minister of Agriculture,
Ottawa.

ANNUAL REPORT OF SPECIAL IMMIGRATION AGENT.

(M^DM^E. VON KOERBER.)

KORNTHAL, NEAR STUTTGART,

16th January, 1877.

SIR,—With regard to “general emigration” and the Swiss scheme, I, in the first instance, beg to refer you to a report sent in March last, which was to serve at the same time as an answer to Mr. Jenkins' report, and as an expression of indignation at the manner in which he treated me and my work in that report.

Though the Canadian Government did not take any action with regard to Switzerland, I nevertheless proceeded to not only create sympathy for Canada and my special plan, but I formed committees to represent the scheme in Switzerland, and sent to Canada some very excellent farmers to form a nucleus for a colony and to furnish the proof that my calculations as to land and people are not wrong. In September I held a conference in Berne, at which Mr. Dore assisted; I explained my views upon emigration and the principles which guide me in my work, and the results I aim at. That same day a committee of gentlemen formed itself with the intention of making themselves thoroughly acquainted with my work and the emigration question in general. As I intended to go to Canada shortly afterwards, this committee would hold itself in readiness to call together a large public meeting as soon as I could send them news that Canada wishes to identify herself with Swiss emigration, and adopt a definite system; the committee would bring the matter prominently before the public and uphold it with the Government.

My object in going to Canada was to advocate personally the adoption of the Swiss scheme ; also my proposals with regard to Wurtemberg, which had remained unnoticed up to that time, as well as the ladies' immigration committees, for the support of my female emigration scheme.

Towards the middle of October I sailed, and while in Canada, was so fortunate, I think, as to engage the attention of the Governments of Ottawa and Ontario ; I also formed a gentlemen's committee in Toronto, for the support of my work, and in Toronto, Ottawa and Montreal, ladies' committees formed themselves ; the names of the different members have been sent to your Department. These committees should be recognised by your Government and legitimised by the several German and Swiss Consuls, and are to serve as a basis to the thorough introduction of my scheme, both in Switzerland and in Germany. I am now waiting to be properly accredited, according to your promise, and then to proceed again to Switzerland, and thence to Berlin. The plan which I lately had the honour of sending to the Honourable the Premier, and to your Department, is quite suitable to form the basis for an understanding or treaty between the Canadian and the Swiss Governments.

I beg to tender my sincere thanks for the kindness you have shown me ; I am equally indebted to Mr. Lowe and to Mr. Dore ; I also gratefully acknowledge the zealous assistance to my people and myself from the part of the different immigration agents in Canada.

I have the honour to remain,

Honourable Sir,

Your obedient servant,

ELISE VON KOERBER.

The Honourable
Minister of Agriculture,
Ottawa :

No. 39.**REPORT OF SPECIAL IMMIGRATION AGENT, CHICAGO.****(A. HALVORSEN.)**

After several very urgent solicitations from countrymen residing in this city, as well as through the West and North-West, I, agreeable to their wishes, in the month of July, 1875, concluded to make a journey through the Province of Manitoba, that Province being comparatively unknown to a majority of my countrymen.

The object of my visit was to ascertain the nature and condition of the soil, with a view to making future settlements.

The most prominent interrogatories propounded to me at the time was:—

First, can we obtain good arable land, with sufficient timber for contingent use? Second, are there any markets for produce when produced? Third, can the necessaries of life be procured without too great amount of inconvenience? Fourth, can labour be obtained, and, if so, what wages is paid?

These and similar ones were the most frequent questions asked me, which I replied to, after my return to this city again in the month of October, 1875, through a series of publications in the several Scandinavian newspapers published in this city, which have a circulation extending as well through the West and North-west, as in Norway, Sweden and Denmark.

In these publications I set forth every particular advantage which Manitoba offers as fully as at that time had come under my knowledge. After the appearance of these sketches in the newspapers, I received a very large number of letters of inquiry in regard to Manitoba, all of which were properly and in due course answered.

The reason why the number of emigrants to Manitoba has been so limited, is, in a great measure, owing to the extremely hard times and the scarcity of money throughout the States, and from the people contemplating emigration being unable to obtain the necessary means which would enable them to settle in a new country.

On the other hand, the scarcity of labour in Manitoba has, in a great measure, discouraged those in search of the same.

If I could secure labour for my countrymen, then I could send any number which might be desired, and it would in a great measure facilitate emigration if such could be procured, as the mere assurance would inspire a desire to make a change, not only as a matter of inducement to single men, but also to families contemplating the settlement of lands for the purpose of farming.

In the month of August, 1876, I again left this city for the purpose of making another visit to Manitoba, with a view to explore and, if possible, make discoveries of hidden coal beds.

In the month of September, same year, I started from Fort Garry with a party of six men. In the region of Pembina Mountains I prospected for one month, and bored in several places, and discovered the finest kind of coal rock at a depth of from 58½ to 300 feet below the surface. Owing to want of sufficient tools I was unable to penetrate the rock, as the only tools which I had, and which at that time could be obtained in Fort Garry, was a heavy wheel augur, which was not serviceable, and wholly unfit for that kind of work.

In the month of July, 1876, previous to my last trip to Manitoba, I made a visit to the Eastern States and Lower Canada. In Quebec I saw Mr. Stafford, Government Agent, with whom I left my pamphlets, printed in the Scandinavian and German languages.

I also saw the following gentlemen, with whom I also left pamphlets, and all of them promised to direct emigrants having no certain place of destination to me:— Mr. Farmer, Agent for the Allan Line of Steamships, in Portland, Maine; Mr. Lindgrist, Agent for Cunard Line of Steamships, Boston, Mass. In New York, I conversed with several members of the Board of Emigration. Mr. Henry Hyans, Passenger Agent for Erie Railroad, New York City, agreed to direct emigrants to Mr. Donaldson, Emigration Agent at Toronto.

In addition to this I have sent 5,000 pamphlets to Scandinavia.

To Norway I sent	2,000
“ Sweden “	2,000
“ Denmark “	1,000

These pamphlets were sent to gentlemen connected with emigration, and with whom I am in direct communication and correspondence. Thinking my report perhaps rather lengthy, I have omitted their names, but can furnish a list if desired.

A. HALVORSEN,
Agent.

No 40.

MANIFEST of Cargo, laden on board the barque "Ocean Gem," Quebec, 324 tons register, C. Hoffman, Master, from Montreal to Sydney, N.S.W.

Shippers.	Residence.	Description of Goods.
Upper Canada Furniture Co.....	Bowmanville.....	2 cases furniture.
James Brown.....	Montreal.....	1 case slates.
McMurray & Fuller.....	Toronto.....	10 cases woodware.
R. Scott.....	Galt.....	2 cases
Jas. Warnock & Co.....	do.....	10 boxes axes, 3 cases.
R. Hay & Co.....	Toronto.....	13 cases furniture.
D. F. Jones & Co.....	Gananoque.....	2 cases hardware.
Gray, Young & Sparling.....	Seaforth.....	3 barrels salt.
John Leith.....	Hamilton.....	1 case.
Geo. Moorhead, Manufacturing Co.....	London.....	1 sideboard.
do do.....	do.....	1 case.
do do.....	do.....	1 case.
John Beard.....	Woodstock.....	1 package, 1 barrel.
Wentworth, E. & J., Co.....	Hamilton.....	10 cases machinery.
Catell, Frères.....	Montreal.....	11 boxes maccaroni, &c.
DeCastro Cooperage Co.....	do.....	3 barrels, 2 pks. staves, 2 pks. headings.
A. & C. J. Hope & Co.....	do.....	1 box hardware.
M. Lefebvre.....	do.....	1 case vinegar.
H. A. Nelson & Sons.....	Toronto.....	1 case woodenware.
J. H. Stone & Co.....	Hamilton.....	1 case lanterns.
John Baird & Co.....	Almonte.....	1 case tweeds.
James Stuart.....	Brockville.....	12 cases hardware.
John Abell.....	Woodbridge.....	9 cases machinery.
Manville & Brown.....	London.....	1 crate.
Cameron & Co.....	Galt.....	4 cases machinery.
Wm. Bell & Co.....	Guelph.....	9 organs.
John Elliott.....	London.....	5 cases.
Toronto Car wheel Co.....	Toronto.....	4 car wheels, 1 box.
Hugh Miller.....	do.....	1 case tick destroyer.
Wm. Hearn.....	Ottawa.....	1 case.
New Rockland Slate Co.....	Richmond.....	1 case slates.
Frost & Wood.....	Smith's Falls.....	6 cases machinery.
Burlington Glass Co.....	Hamilton.....	1 cask glassware.
do.....	do.....	1 box.
Upper Canada Furniture Co.....	Bowmanville.....	3 cases furniture.
do.....	do.....	1 case.
do.....	do.....	1 case.
Perley & Patee.....	Ottawa.....	30 pcs. lumber, 10 bundles laths.
Wells & Co.....	Toronto.....	1 case.
Bryce, McMurrich & Co.....	do.....	2 cases.
Hon. Jas. Skead.....	Ottawa.....	21 pcs. lumber, 5 bundles laths, 1 bundle pickets, 1 bundle railings.
Crawford & Co.....	London.....	8 cases agricultural imple-ments.
James Stuart.....	Brockville.....	1 horse truck and 1 case.
Anne O'Connor.....	Montreal.....	1 straw cutter (cased).
Canada Sewing Machine Co.....	Hamilton.....	3 cases sewing machines.
L. D. Sawyer & Co.....	do.....	7 cases.
S. J. Moore.....	do.....	7 cases.
do.....	do.....	1 barrel ginger ale.
Elora Agricultural & Machinery Co.....	Elora.....	1 case.
do do.....	do.....	2 cases.
C. W. Williams, Manufacturing Co.....	Montreal.....	11 cases sewing machines.
Smith, Cochrane & Co.....	do.....	4 cases boots, &c.
A. J. Ulley.....	do.....	1 box brushes.
B. E. Charlton.....	Hamilton.....	1 box vinegar.
Wallacetown Carriage Co.....	Wallacetown.....	2 carriages (cased).

MANIFEST of Cargo, laden on board the barque "Ocean Gem," &c.—*Con.*

Shippers.	Residence.	Description of Goods.
Hamilton Clock Co	Hamilton	1 case clocks.
Hamilton Manufacturing Co	do	1 case clothes ringers.
Alex. Mitchell	Mitchell, Ont.	1 barrel, 2 packages staves.
Dominion Leather Board Co.	Montreal	1 case.
Slater & Perry	do	1 case of boots, &c
Peck, Benny & Co.	do	14 kegs, 1 box nails.
Leaser & Jacobs	do	1 case cigars.
John Boyd	do	1 box brushes.
Joseph Gould	do	2 organs.
R. C. A. & Co. & J. B.	do	4 packages, in cabin.
H. Whiteside & Co.	do	2 packages spring beds.
H. R. Ives & Co.	do	1 package photographs.

FREIGHT LIST of the Cargo of the Barque "Escort," Capt. R. G. Waterhouse, from New York for Sydney, New South Wales.

<i>Shippers.</i>	<i>Packages and Contents.</i>
Welland Vale Manufacturing Co..	2 cases merchandize.
E. & C. Gurney	4 stoves, 3 cases stove fixtures.
J. Scales	30 cases tobacco, 1 package 4B. tobacco.
Jas. Brown	3 cases map stands.
J. Hourigan	10 cases axes.
Holland & Co.	5 barrels ale.
Willard Sager	2 cases carriages.
N. Young	2 cases carriages, 2 crates wheels, 1 pole.
J. C. Small	1 case pumps.
Wilkie & Osborne	8 cases sewing machines.
J. L. Rawline	1 case merchandize.
Dominion Organ Co.	4 cases organs.
Haggart Brothers	3 cases containing reaping machines.
James Newton	7 barrels paint.
Geo. Brockland	1 case pamphlets (use of Commission).
John Abell	1 engine, 1 water-wheel, 4 cases merchandize.
Manville & Brown	4 cases straw-cutters.
Green Brothers	1 reaper, 2 cases, 1 pole, 1 pkg. merchandize.
Forsythe & Co.	8 cases & 1 pkg., containing 2 polos, representing two mowing machines.
Gardner, Sewing Machine Co.	8 cases sewing machines.
J. B. Armstrong & Co.	2 cases buggies, 2 pairs shafts in 1 package, 2 cases fixtures.
Peter Adams	2 cases, containing parts of waggon, 1 package wheels, 1 package sides, 1 package polos.
D. Maxwell	6 cases merchandize.
Hugh Millory	1 case, containing plow.
McClay Manufacturing Co.	4 cases stoves.
John Campbell	3 cases carriage and polos.

P. Gilles & Co.....	2 cases carriage and 1 pair shafts.
Jas. Reid.. ..	3 cases furniture.
McCrea & Co.....	1 package and 1 case merchandise.
Thompson & Williams.....	9 cases machinery, 1 bundle soles.
G. Moorhead Manufacturing Co...	8 cases furniture.
Hanetzman & Co.....	1 case, containing piano.
King & Brown.....	1 case, containing merchandize.
R. Malcolm.....	1 case, containing merchandize.
J. & J. Taylor.....	1 safe.
Whitney & Morton.....	2 cases railway car couples, &c.
Forsyth & Co.....	4 cases, 1 table, 1 pole, comprising 1 Dominion mower and reaper.
Morrison Brothers.....	1 case merchandize.
Nixon Brothers.....	4 cases reaper and cultivator.
Exhibition, Australia.....	18 cases wood works.
The Dartmouth Rope Works Co.	15 boxes rope, 6 coils rope.
Wm. Kelly.....	1 case lithographic stone.
Ontario Lithographic Stone Co...	1 case do
C. W. Williams, Manufacturing Co.	12 cases sewing machines.
Oxford Manufacturing Co.....	1 case tweeds.
J. L. Raubone.....	3 cases gun implements, &c.
John Ritchie & Son.....	3 cases steam gauges.
Brune Ledoux.....	1 case carriage, 2 packages wheels.
Woods Lyons.....	3 cases do 6 do
John McDougall & Sons.....	2 cases car wheels.
J. B. Hall.....	3 cases pails and tubs, &c.
Wilson, Gilmour & Co.....	6 slate mantles.
R. M. Wanzer & Co.....	18 cases sewing machines.
Hugh Miller & Co.....	1 case cattle food.
Thos. S. Elliott.....	1 case washing machines.
Chas. Boeck.....	1 case brushes.
Thos. Moore.....	1 case tool handles.
Walker & Miles.....	1 case maps, &c.
E. R. Shorey & Co.....	1 case vinegar.
G. S. Tiffany & Co.....	4 pkgs., representing 1 brick making machine.
H. T. Smith.....	24 pkgs., containing 1 soda water fountain.
Jones & Burland.....	2 cases railway car springs.
P. M. Bantenhaimer.....	2 cases potatoe digger.
David Maxwell.....	5 cases agricultural implements.
Thos. Richardson.....	1 package do
Chas. Duperon.....	1 do do
Massay Merchandize Co.....	8 cases do
A. C. Atwood.....	2 cases bee hives and honey extracts.
Munroe & Hogan.....	1 package plows.
L. Sells.....	4 cases cider presses.
John Abell.....	9 packages agricultural implements.
Haggart Brothers.....	3 do do
John Watson.....	18 do do 4 pkgs., con- taining mowers and reapers.
Acton Plow Co.....	1 package plows.
Green Brothers.....	4 do reapers
Jas. Harris & Co.....	14 do agricultural implements.
Sherman & Foster.....	12 do do machinery.
Chas. Wilson.....	1 case wire stands.
A. Harris & Son.....	5 package mowers and reapers.
Stephen Gerolomy.....	1 fanning mill.
Jas. Brown.....	2 cases map stands.

D. Herald.....	1 canoe.
Zépherin Lapierre	2 boats.
Riley & May.....	4 packages billiard tables.
Australian Commission	1 case, telegraph, &c.
G. F. Fleming & Son.....	3 packages steam engines.

MEMORANDUM of Canadian Exhibits on board "James S. Stone," from New York, for Exhibition at Sydney, New South Wales.

Shippers.	Residence.	Package and Contents.
John Labath	London.....	4 Casks Bottled Ale.
do	do	1 Cask Draught Ale.
H. Shorey & Co.....	Montreal.....	1 Case of Clothing.
Educational Department.....	Toronto.....	1 Case Educational Pamphlets
do do	do	1 Case of Maps.
Canada Sewing Machine Company.....	Hamilton.....	2 Cases of Sewing Machines.

MANIFEST of Canadian Exhibits on board barque "N. Boynton," from New York for Sydney, New South Wales.

H. Murton.....	10 half barrels oatmeal.
Cosgrave & Co.....	3 barrels ale and porter.
Cant, Gourlay & Co.....	5 cases machinery.
T. S. Elliot.....	5 cases washing machines.
L. Cossilt.....	1 gang plow.
Walker & Miles.....	4 box ploughs.
James Brown	1 case map stands:
Peter Adams.....	1 waggon in (two) cases.
do	1 do do do.
do	1 pole.
do	1 case of wheels, &c.
John Abell.....	1 case.
do	1 package of wheels and pole.
Haggart Bros.....	1 case.
do	1 piece of machinery.
D. Herald.....	1 canoe.
William English.....	1 do